14. Assignment Topics with materials

**UNIT-1**

1. What are the basic guidelines for value education?

The subject that enables us to understand ‘what is valuable’ for human happiness is called value education. In order to qualify for any course on value education, the following guidelines for the content of the course are important:

- **Universal:** It needs to be applicable to all the human beings irrespective of cast, creed, nationalities, religion, etc., for all times and regions.
- **Rational:** It has to appeal to human reasoning. It has to be amenable to reasoning and not based on dogmas or blind beliefs.
- **Natural and verifiable:** It has to be naturally acceptable to the human being who goes through the course and when we live on the basis of such values it leads to our happiness. It needs to be experientially verifiable, and not based on dogmas, beliefs or assumptions.
- **All encompassing:** Value education is aimed at transforming our consciousness and living. Hence, it needs to cover all the dimensions (thought, behavior, work and realization) and levels (individual, family, society, nature and existence) of human life and profession.
- **Leading to harmony:** The value education ultimately is targeted to promote harmony within the individual, among human beings and with nature.

2. It is imperative to learn and understand professional ethics. Discuss

**Professional ethics** encompass the personal and corporate standards of behavior expected by professionals.

The word professionalism originally applied to vows of a religious order. By at least the year 1675, the term had seen secular application and was applied to the three learned professions: Divinity, Law, and Medicine. The term professionalism was also used for the military profession around this same time.

Professionals and those working in acknowledged professions exercise specialist knowledge and skill. How the use of this knowledge should be governed when providing a service to the public can be considered a moral issue and is termed professional ethics. It is capable of making judgments, applying their skills, and reaching informed decisions in situations that the general public cannot because they have not attained the necessary knowledge and skills. One of the earliest examples of professional ethics is the Hippocratic oath to which medical doctors still adhere to this day.
Student ethics

As attending college after high school graduation becomes a standard in the lives of young people, colleges and universities are becoming more business-like in their expectations of the students. Although people have differing opinions about if it is effective, surveys state that it is the overall goal of the university administrators. Setting up a business-like atmosphere helps students get adjusted from a more relaxed nature, like high school, towards what will be expected of them in the business world upon graduating from College.

Codes of conduct

Codes of conduct, such as the St. Xavier Code of Conduct, are becoming more a staple in the academic lives of students. While some of these rules are based solely on academics others are more in depth than in previous years. Such as, detailing the level of respect expected towards staff and gambling.

Not only do codes of conduct apply while attending the schools at home, but also while studying abroad. Schools also implement a code of conduct for international study abroad programs which carry over many of the same rules found in most student handbook.

Engineering Ethics:

Ethics of human character for any scientific venture are expressed as moral principles of conduct. Ethics are the elements which belong to a branch of philosophy dealing with the moral nature of human conduct, or it may be defined as, the principles and standards guiding moral conduct in everyday life or in a special field or profession. The word ethics suggests norms, moral responsibilities, personal values etc. When we talk about engineering profession, we talk about engineer’s moral responsibilities and personal. For example, an engineer, who is trained for technical skills, is required to observe certain code of conduct or norms for his acts or behavior. This code of conduct or behavior pattern is governed by ethical considerations, popularly known as professional ethics. The professional ethics signifies the code of conduct to be adopted in practice by the individuals who are in
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respective profession. Role commitment is, in general, engineer’s moral responsibility. The ethical conduct of engineers makes them accountable for their actions towards the society and the community which entrusts its young ones to their duties and work, towards the pupils, towards the authorities who supervise their actions and most importantly towards their own self. “The role of engineers is vital for progress and development of the country. All the professionally registered engineers and technicians have committed to working in an ethical and socially responsible manner according to their professional engineering institution’s code of conduct, issued in line with guidance from the Engineering Council. The study on ethics helps to know the people’s beliefs, values, and morals, learn the good and bad of them, and practice them to maximize their well-being and happiness. It involves the inquiry on the existing situations, form judgments and resolve the issues. In addition, ethics tells us how to live, to respond to issues, through the duties, rights, responsibilities, and obligations. KEYWORDS Ethics, Professional Ethics, Engineering, Code of Conduct, Social Responsibility.

That is, the practice of engineering has an inherent (and unavoidable) impact on society. Engineering is based upon that relationship with society (inter alia). An engineer’s conduct (as captured in professional codes of conduct) toward other engineers, toward employers, toward clients, and toward the public is an essential part of the life of a professional engineer, yet the education process and professional societies pay inadequate attention to the area. If one adopts Skooglund’s definition of professional ethics (1) (how we agree to relate to one another), then the codes of professional conduct lay out a road map for professional relationships. As professionals, engineers need to internalize their codes and to realize that
they have a personal stake in the application of codes as well as the process of developing the codes. Yet, most engineers view professional codes as static statements developed by "others" with little (or no) input from the individual engineer. Complicating the problem, questions of professionalism (such as ethics) are frequently viewed as topics outside the normal realm of engineering analysis and design. In reality, professional responsibility is an integral part of the engineering process.

3. Define the terms Values, Morals & Ethics?

   Values are rules. Values are the rules by which we make decisions about right and wrong, should and shouldn't, good and bad. They also tell us which are more or less important, which is useful when we have to trade off meeting one value over another.

   Morals are how we judge others. Morals have a greater social element to values and tend to have a very broad acceptance. Morals are far more about good and bad than other values. We thus judge others more strongly on morals than values. A person can be described as immoral, yet there is no word for them not following values. Morality can be described as a core set of values and beliefs that act as a guide when formulating courses of action.

   Ethics are professional standards. Ethics are thus internally defined and adopted, whilst morals tend to be externally imposed on other people. Ethics is the branch of philosophy concerned with human values and conduct, moral duty, and obligation. Basically, ethics is concerned with what people might describe as right and wrong human conduct.

4. What are the requirements to fulfill basic human aspirations?

   Our basic aspirations are happiness (mutual fulfillment) and prosperity (mutual prosperity). Happiness is ensured by the relationships with other human beings and prosperity is ensured by working on physical facilities.

   Right Understanding: This refers to higher order human skills – the need to learn and utilize our intelligence most effectively.

   Good Relationships: This refers to the interpersonal relationships that a person builds in his or her life— at home, at the workplace and in society.

   Physical Facilities: This includes the physiological needs of individuals and indicates the necessities as well as the comforts of life. It means the feeling of having or being able to have more physical facilities than is needed.

   Happiness- with human beings  
   Mutual prosperity- with rest of nature

In order to resolve the issues in human relationships, we need to understand them first, and this would come from ‘right understanding of relationship’. Similarly in order to be prosperous and to enrich nature, we need to have the ‘right understanding’. The ‘right
understanding’ will enable us to work out our requirements for physical facilities and hence correctly distinguish the difference between wealth and prosperity. With nature as well, we need to understand the harmony in nature, and how we can complement this harmony.

5. Define Human Values?

Human values are the foundation of social order, justice and progress. Human values are social and ethical norms common to all cultures and societies, as well as religions. They represent a melding of social progress and spiritual growth.

*Timeless Human Values*

- A Deep Caring For Life
- Responsibility
- Non-violence
- Love & Compassion
- Friendliness & Co-operation
- Generosity & Sharing
- Integrity, Honesty and Sincerity
- Moderation
- Service
- Commitment & Responsibility
- Peace, Contentment, Enthusiasm
- Trust
- Unity
- Humor
- Acceptance

UNIT-2

1. What do you understand by the term moral dilemma? Differentiate with moral Autonomy.

**MORAL:**

- Refers only to personal behavior.
- Refers to any aspect of human action.
- Social conventions about right or wrong conduct
- Moral dilemmas are kind of situations where a difficult choice has to be made. The sorts of complexity and murkiness that may be involved in moral situations are,
- Vagueness
- Conflicting reasons
- Disagreement
- The steps in confronting Moral Dilemmas:
  - Identify the relevant moral factors and reasons.
  - Gather all available facts that are pertinent to the moral factors involved.
  - Rank the moral considerations in order of importance as they apply to the situation.
  - Consider alternative courses of actions as ways of resolving dilemma, tracing the full implications of each.
  - Get suggestions and alternative perspectives on the dilemma.

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By weighing all the relevant moral factors and reasons in light of the facts, produce a reasoned judgment.

*Moral autonomy:*
- Self-determining
- Independent
- Personal Involvement
- Exercised based on the moral concern for other people and recognition of good moral reasons

2. Explain with examples the various ethical theory available for “right of action”

Theories about right action:
- Utilitarianism: most good for the most people
  (Act utilitarianism and Rule utilitarianism)
- Duty ethics: duties to respect persons
- Rights ethics: human rights
- Virtue ethics: virtues and vices

*Drawbacks of Utilitarianism:*
- Sometimes what is best for the community as a whole is bad for certain individuals in the community.
- It is often impossible to know in advance which decision will lead to the most good.

*Drawback of Duty Ethics:*
- Duty ethics does not always lead to a solution which maximizes the public good.

*Drawbacks of Rights Ethics:*
- How do we prioritize the rights of different individuals?
- It often promotes the rights of individuals at the expense of large groups / society.

Uses of ethical theories:
- Resolving moral dilemmas
- Justifying moral obligations
- Relating professional and ordinary morality

3. Professional ethics should be imbibed and not to be taught. Do you agree or disagree. Justify.

It is an inherent quality learnt as a part of a development process of a personality. The imbibing of value system, therefore, predetermines the ethical behaviour of an individual. An individual learns to respect the values imparted by the family in particular and society at large.
Can Ethics be Taught: Ethics is a study of one perception of what is right or wrong (1) in a given context or a situation. It is an attitude of how one reacts or relates to an incident, happening or a stand one takes in the house or at the place of work. It is an inherent quality learnt as a part of a development process of a personality. In other words, an individual learns the values of life as a part of growing up without being separated as another instructional behaviour taught as a part of the curriculum. The imbibing of value system, therefore, predetermines the ethical behaviour of an individual. These behavioural responses are dependent upon certain external factors like one's culture, religious beliefs and regional influences. In an Indian context the institution of family as well as community; system play a major role in the embryonic nurturing of ethical attributes and judgment. An individual learns to respect the values imparted by the family in particular and society at large.; Rather one's lifestyle embraces within its fold the ethical guidelines. Parents many a time become the role models for their children and act as vehicles of learning of life values.

An individual learns the basic concepts of life in a contrasting milieu of personal observation and tutoring. The family sets down its own traditional behaviour. With these influences setting the tone of for ground rules of rights and wrongs.; teaching of ethics as a doctrinated subject has to cross layers of set ideas in the minds of the learners. Along with it the change in past life style of simplistic approach to holistic but complex present day high tech life demands the intrusion of newer life value systems. Concern and understanding therefore become the most important key words of ethics. The social upbringing of a person, the level of literacy as well as the standard of living of a social person do play and influence the learning process of ethics. In other words the blending of professed values with operational values do determine the moral sensitivity of a person to simple day to day activities to complex issues of one's occupation.

Therefore, teaching of ethics may be an attempt to justify our actions or inaction in the name of science or medicine or humanities. Technology is simply stated could be called as manipulation of nature for human well-being. (2). Universities or places of learning generally feel apprehensive about the sudden spurt of knowledge explosion which has outpaced the general understanding of a common man who has to reap the benefits and consequences of advanced knowledge of living. When I say a common man must understand what is happening in the name of science which is going to penetrate the lifestyles of living. In other words there is a communication gap between the advent and advancement of science and the common man. That gap has necessitated the need to teach ethics to the givers of science or policy makers so that their method of application of science brings no harm to the simple interests of living. In other words modern day demands that sensitivity to human feelings and needs become paramount. Logic, common sense, knowledge, technical skills, economic upliftment, health and disease and more - these aspects are juxtaposed against the value and reverence for human life. With many options in hand a giver has to face many ethical dilemmas which can be solved when one has the right science tempered with humanities in him or her. That ability to judge what is right science requires the student or teacher or scientist to learn the basics of human introspection loudly taught as Ethics. In such a context if one has to ask a question Do we have practically trained teachers of ethics. Volumes of scientific literature will name a set of elitists group of philosophers, scientists, and policy makers hailing from the prestigious group of Institutes of Ethics like the Hastings Center, USA, Departments of Philosophies and medicine all over the globe along with select

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committees of Ethics in hospitals or institutions. This group will analyze, write the alphabets, set the syllabi, develop the framework, devise guidelines and grade the curriculum. Great Philosophers, religious thinkers, practical scientists - all will act as guiding beacons of light for the living of ordinary people.; Therefore, we have great humanistic thinkers who place human welfare above science. Yet materialistic advancements have outweighed the social developments of mankind.

Biotechnology of living including the gene sequencing, screening, testing, cloning, agricultural and animal science marvels, space odysseys, test tube babies and other scientific miracles have created better opportunities and options to make one's life comfortable. The multiple availability of materialistic opportunities has created wider options of choices one can look for.; The knowledge to decide which option is suited to the individual's need demands proper guidance and education.; Therefore it is high time that we have proper dissemination of knowledge to the common man who will understand and follow what needs to be followed for his well being. That dissemination of knowledge depends upon true education of information to the consumer. Keeping these contradicting needs and apprehensions, education of ethics needs proper communication skills including responsible mass media, which will make everyone of us Science Literate. That is a very big responsibility on every true citizen of the world. Keeping these contradictions in mind I wish to justify my thought that ethics must be an imbibed virtue rather than a taught science. I will illustrate few cases to highlight some of these thoughts for you to ponder and deliberate. Family plays an important role in building a mind that could ethically judge a situation or one's life.

Case 1.

In the olden days (even now in some places) the parents fixed marriage. The bridegroom's family visits the would be bride's residence, have a look at the bride, discuss the capacity for the family to sustain a relationship querying the economic, educative and cultural soundness of the bride and her family. In one such incident the bridegroom was shown a lady and bridegroom got married to find out he was married to another person with mental retardation.; In legal terminology this could be taken as impersonation. But the bridegroom said that he will honour the marriage. This was Islamic wedding wherein the priest; before the marriage takes the consent of the bridegroom and bride. He said that I did promise to take these women as my lawfully wedded wife. I need to honour that commitment. To honour that commitment he stayed married to her for life. In the process he fathered a male child. He could take care of his wife and child; meeting their personal, psychosocial demands. The same person in his occupation was honest and sincere never succumbed to the temptations of corruption.; He hailed from a very poor family. He learnt his values of life from his mother's advice and her sufferings.; He was neither a creative genius nor a writer to give a painting or a literary piece. Instead he made his life a literary marvel. What do we learn from it?

1. A true man will honour his commitment. In that process he will bring no harm to his dependents.

2. Altruism is the end for one's egoism.
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3. A mentally compromised person's right to procreation can be justified if the sane partner could mother the child.

4. A child could grow with minimum hurts and maximum benefits comparable to a welfare society or other adopted parents or steps parents.

5. The right to choose the decision and to abide by one commitment was inherent quality than an acquired one.

6. A man or woman must look beyond their interests to create a stable family, which is the smallest unit that could build a stronger nation.

A child born in such a family has an innate quality of moral consciousness which will make him to think before each step of life or before taking a decision to introspect whether what he does is right or wrong.; This is an exceptional case for discussion. But it does bring the point how strong the family values coupled with religious belief influences one's personal behavior. To such a person if one teaches that abortion could be undertaken in such situations when it brings harm to the mother how he or she will react. If he is the physician what option he will choose? Will he leave the decision to the patient? Or will he impose his righteousness on the patient?; If the patient says I want the baby comes what may to my health for my family needs a baby badly?: Will you take this as an act of informed consent of the patient? Ethical Principles can be taught but not situations for each situation create a unique example of its own. That is why the concept Bring No Harm brings new meanings every time we discuss it. A child who was plucked away from the parents in the childhood to be grown as an instrument to become a professional thief or a killer may not understand what the precept means. I was impressed by an anecdote narrated by a speaker trying to bring out the difference between teaching and learning. He said that one person was trying to teach a student how to play a flute. The other person was asked after a period of listening whether he has learnt to play the flute. He said No and went on to say that he has done the job of teaching. He has forgotten to ask whether I have learnt it.;

Only 20 percent of literate segment said they understood the term Bioethics. They gave very vague definitions. All of them had voiced one concern that there is slow degeneration of value system in all walks of life that is very dangerous for a developing country like ours.

Most of them felt that in schools in the name of moral education the pupils were educated to be civic responsible. That is to start the day's work with a prayer, to respect parents and teachers, to maintain personal hygiene and to regard work as worship, to keep the surroundings clean. But Bioethics as a specialized could be taught as an ancillary subject at degree level.

The areas they thought that need to be given great ethical considerations are: 1) politics and political leaders 2) traffic rules and regulations 3) Education and Health 4) Mass Media.

1. Politics and Political Leaders
Today Indian Politics have drifted slowly away from the polity of people's welfare into personal welfare. Speeches, actions and slogans adopted were taken as vehicles of mass appeal giving scant respect to realities and needs of the society. Rather the emotive components have taken upper hands rather than intellectual and rational deliberations. Regionalism, religious bias, personal character assassination, the longing to stay long in power and power hunger have dominated the political scenes instead of the strength and unity of the nation barring times of emergency.; For a large democracy like India politicians and politics need revamping of values that will guide the nation towards true development rather than projected statistical development.

2. Accidents

The number of people getting killed by accidents has increased to such an extent it has become a routine news item of many of the dailies. Traffic rules are given scant respect, Roadworthiness of vehicles have been pushed to the back seats, accountability on the part of authorities is reduced to clinging on to one's position. The manufacturers of vehicles and the easy availability of finances have made people to buy vehicles in erratic numbers.; Most of them don't have a basic knowledge as to how they must drive the vehicle they have bought.; Every vehicle has a knack and way of being driven which needs to be highlighted by the suppliers. Instead what is being done is mass appeal slogans like Buy this vehicle- save petrol for it gives 75 kilometers running for one litter. Traffic rules are not given great care. These are some of the statements prepared out of their responses.

3) Education and Health

Commercialization education has led to the opening up of greater numbers of universities, colleges and institutions all over.; Distance education has tried to bring down illiteracy. Higher Education including professional colleges has tried to improve our human resource base. But the value system of our education has been deteriorating due to either private management dictating their personal policy or infiltration of politicians controlling the field of education. Though we have all India Bodies of Control for the maintenance of standards of education, the dictum "money is the great Organizer" dilutes the moral dictates of education.

4) Mass Media

Responsible mass media is the greatest asset of a country whether it is a Newspaper, magazine, Television or Information highway Net Work. Reporting of certain scientific matter as News item like manufacture of petrol through indigenous methods or sensationalizing volatile and sensitive news items or highlighting specifics of an incident or false claims of commercial advertisements do hamper the development of a developing nation.

I have highlighted some of the complex issues of learning and teaching of bioethics in an Indian context as I understand with the help of few questions and answers along with my own introspection of value systems that I envisage is detrimental to the welfare of a citizen. Yet the field is wide open for many more discussions which could find a way of reporting the responses of common man regarding certain specialized fields like biodegradation, AIDS,
Genetics and other applications of science. Yes, we too have very efficient machinery of educating the people the values of life. But the scenes of majority and the poverty that fills the canvass of our nation calls for more studies and efforts to feed, educate and shelter him to bring the common man to the table of thinking so that the edification of ethics will be appreciated by one and all.

4. ‘Human being is coexistence of the Self and the Body’ – elaborate on this statement.

The human being is the co-existence of ‘I’ and the body, and there is exchange of information between the two, i.e. ‘I’ and body exist together and are related. There is a flow of information from ‘I’ to the body and from body to the ‘I’. We can make this distinction between the self and the body in three ways in terms of the needs, activities and the types of these two entities. All the needs of I, say respect, trust, etc., can be called as Happiness (such), while the needs of body are physical facilities (suvidha) like food. The two things are qualitatively different. There is no relevance of quantity for the needs of I as it is qualitative, while the needs of body are quantitative, and they are limited in quantity.

The activities of ‘I’ are activities like, desire, thinking, selection, while the activities of body are activities like eating, breathing etc. The mode of interaction of ‘I’ includes knowing, assuming, recognizing and fulfilment. The fulfilment depends on recognition depends on assumptions and assumptions depends on knowing or not knowing (beliefs). If assuming is based on knowledge, then recognition will be correct and fulfilment will be correct. If assuming is not based on knowledge, then things may go wrong. The mode of interaction of body is only recognizing and fulfilling. Self is a conscious entity and the body is a material entity, or physic-chemical in nature. Thus we can say:

To conclude we can say that the human being can be understood in terms of a co-existence of two entirely distinct entities, namely sentient ‘I’ and material body. Their needs and activities
are quite different and have to be understood accordingly. But these two constituents of human being are to act in close synergy with each other.

5. Explain the activities of knowing, assuming, recognizing and fulfillment with one examples.

If we look at the variety of activities that we are engaged in commonly – we see that we can put them in three categories:

1. Activities that are going on in the self
2. Activities that are going on in the body
3. Activities involving both the self and the body

Knowing, assuming, recognizing and fulfilling are the activities involving both the self and the body.

1. Activities of recognizing and fulfilling in the body: Apart from the activities of Breathing, Heartbeat, Digestion etc., the activities of the body can also be understood as recognition and fulfillment. In fact, the mutual interaction between any two material entities can be understood as recognition and fulfillment of their relationship. For example when we are thirsty and drink water, the body absorbs the water to the extent needed and uses for the nourishment of the various organs. Here, body recognizes its relation with water and fulfils it.

2. Activities of knowing, assuming, recognizing and fulfilling in the self (‘I’): When it comes to self (jivan or ‘I’), which is a conscious entity; in addition to ‘recognizing and fulfilling’, there is also the activity of assuming and that of knowing. In fact, recognizing and fulfilling in case of human beings will depend upon knowing and/or assuming.

a. We assume – We all make assumptions and our response (recognition and fulfilment) is dependent on the assumption. For ex.: If I see a snake and assumed it to be a rope, I shall respond differently to it, than if I take it to be a snake itself. We call this activity ‘assuming or manana’.

b. We recognize – We all recognize things today, we recognize a variety of things. Like, we recognize water, our parents, friends, etc. We call this activity ‘recognizing or pahachaanana’. The recognizing in ‘I’ depends on assuming.
c. We fulfill – The response that follows recognition is called the activity of ‘fulfilling or nirvaha karna’. The fulfillment depends on the recognition. For ex.: Once we recognize water, we take it.

UNIT-3

1. Discuss Professional Responsibility and Engineering Ethics

The rationale for teaching ethics to engineers and computer scientists seems fairly obvious. Their work (developing, designing and implementing technologies) has an enormous impact on the world.

Discussion of an engineer's inherent interaction with society and societal needs, leads naturally to an engineer's responsibility to society. Since the Griner report, engineering education has made significant progress in strengthening the basic sciences in engineering, including mathematics, chemistry, and physics. Recent trends toward increasing discussion of professionalism in the classroom notwithstanding, topics of professional responsibility (as compared to science, engineering sciences, and engineering analysis) have received surprisingly little attention in engineering education over the last several decades. The authors fear that professional responsibility may also have been underemphasized in the practice of engineering. This includes such topics as:

- Safety and Welfare of the Public and of Clients
- Professional Ethics
- Legal Liabilities of Engineers
- Environmental Responsibilities
- Quality
- Communications

Each of these topics relates to the interaction of an engineer to others: clients, society, employers, employees, and to the engineering profession. Regarding engineering ethics, Whitbeck argues that engineers should study engineering ethics from the perspective of a moral agent as opposed to a moral judge. We fully subscribe to this approach not only for teaching engineering ethics, but also for teaching (and practicing) in other areas of professional responsibility. For engineers, engineering ethics is not a topic separate from engineering, it is part of the essence of engineering as it pertains to the professional responsibilities that the engineer has with society. The results of an NSF sponsored workshop on engineering ethics in the classroom utilized techniques from engineering design methodology to address ethical dimensions of engineering problems, designs, and interactions. One may consider numerous engineering design methodologies which will illustrate the point. Pugh, for example, includes the following elements in the "engineering design core".

- Understanding the Market (problem definition: societal need)
- Design Specification (specifying the needs)
- Concept Design
- Detail Design

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- Manufacture
- Sell

Pugh's methodology focuses on product design, but also has applications in process design and general problem solving. Experienced engineers would not logically delay consideration of economic issues until after completion of detail design. That would not allow the engineer to consider economic and performance tradeoffs that are essential in the overall evaluation of alternative designs to be analyzed in the Concept Design element. It is just as important that engineers first approach ethical, safety, liability, environmental, quality, and communications issues in the first step of the design process, rather than allowing the design to proceed without regard to these issues. This allows engineers to address and analyze each element of the problem from the problem statement to the release of the product or service to the customer. This allows engineers to integrate (naturally) the consideration of ethical and other concerns directly into the design process and to expand the alternative designs to potentially eliminate or reduce problems, rather than simply to react to the problems.

This article started with a quote stating that "the essence of engineering is design." ABET defines design as:

The process of devising a system, component, or process to meet desired needs. It is a decision making process (often iterative), in which the basic sciences and mathematics and engineering sciences are applied to convert resources optimally to meet a stated objective. It is essential to include a variety of realistic constraints, such as economic factors, safety, reliability, aesthetics, ethics and social impact. (emphasis added)

ABET's definition of design involves engineering activities which include open-ended problems. These activities include machine design, product and process engineering, manufacturing engineering, and applications engineering. This broad definition of design includes most of engineering activities involving societal interaction. Due to their interactions with society, engineers assume the responsibility inherent in such interactions. ABET's definition acknowledges the relationship of engineering to society in the recognition of "realistic constraints" in the design process (remember that "design is the essence of engineering"). The National Research Council also recognized the importance of engineering in society. Yet engineers frequently give limited attention to the codes which guide their interaction with society Skooglund proposes that professional ethics describe "how we agree to relate to one another". This pragmatic definition of professional ethics can be useful in examining how engineers view their codes.

Development of course material in the last decade has allowed engineering degree programs to expand course offerings in fields of professional responsibility. Additionally, faculty have developed problems for analytical courses which include issues of professional responsibility (see Broom and Pierce, "The Heroic Engineer"). Though developments supporting an engineer's ability to address areas of professional responsibility are encouraging, the authors still believe that academic programs currently are producing far too many engineers who do not understand their professional responsibilities to society. Observations by Vandenburg and Khan support these concerns. They state: "Given current economic, social and environmental trends and policies, the study shows cause for deep
As indicated in *Engineering Education for a Changing World*, "...engineering colleges must not only provide their graduates with the intellectual development and superb technical capabilities, but following industry's lead, those colleges must educate their students to work as part of teams, communicate well, and understand the economic, social, environmental and international context of their professional activities".

Engineers must develop a fundamental understanding of their professional responsibilities. Few engineers have an opportunity, however, to develop or contribute to the development of a professional code of ethics. As a result, engineers are in danger of viewing codes of ethics as static, dictated by "others" for engineering applications. Compare this to the process by which attorneys in the United States develop professional codes regulating their conduct. State bars and their members develop and periodically review their professional codes of conduct. Statewide debate about the codes can be heated and can produce significant discrepancies from state to state in rules of professional conduct. One should expect these discussions to become heated, since these codes describe how professionals (attorneys) will relate to clients, courts, the public, and other attorneys. At the end of the review process, the code describes how the parties will "relate to one another" (using Skooglund's terminology). Partially due to the process used to develop and review their codes of professional conduct, attorneys tend to internalize these codes.

The authors do not suggest that the engineering profession model itself after the legal profession; in fact, substantive differences from state to state have some serious drawbacks. Rather we suggest that engineers examine and adopt "best practices" in development of rules of professional conduct which encourage engineers to understand and internalize their professional codes. Engineers need to develop broad fundamental understanding of their professional responsibilities. In at least one engineering college, students have developed their own codes of conduct (how they will relate to one another and the college) for their academic career. This experience gives the students a personal involvement with professional codes of conduct necessary in the engineering profession. These students have an opportunity to integrate their "professional code" into their daily work as engineering students. This allows students to internalize their professional responsibilities and to develop a fundamental understanding of their obligations and resulting consequences. Students at other universities and the engineering profession would be well served to learn from the experiences of these students who developed their own code.

Since it is difficult for every practicing engineer to participate in the development of national professional codes, it may be better to localize this experience for professional engineers. This can be done by developing codes for conduct at company, division, or departmental levels in traditional engineering environments.

2. **What are the rules framed by NSPE in case of professional advertisements?**

   The rules framed by NSPE (National Society of Professional Engineers) in case of Professional advertisements are as follows:
   - the use of statements containing a material misrepresentation of fact or omitting a Material fact necessary to keep the statement from being misleading.
   - Statements intended or likely to create an unjustified expectation.

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3. **Explain the problems faced due to differentiation in relationship.**

Differentiation based on sex/gender: Issue of women's rights, and women protesting and demanding for equality in education, in jobs, and in peoples' representation. People are insecure and afraid of one another based on their gender. Differentiation based on race: there are many movements and protect against racial discrimination and demands for equality, racial attacks, movements against cast discrimination has people living in fear of such racism, racist attacks, and discrimination.

Differentiation based on age: Protests and movements demanding for equal rights for children on the one hand and for rights for elderly people on the other, generation gap

Differentiation based on wealth: Class struggle and movements to do away with class-differentiation. Many people suffering from a lack of self-esteem and some even committing suicide,

Differentiation based on post: Protests against high handed government officials. At the level of the individual, leads to depression, etc.

Differentiation based on 'isms: Fights, turmoil, terrorism and war, people converting from one Ism to another in order to be able to get more respect.

Differentiation based on sects: Countless religions and sects and each sect has its own movement to ensure that there is no discrimination against people of their belief. Demands for special provisions in jobs and in education.

4. **Explain professions and professionalism.**

**Professions:**
- Knowledge, Organization, Public good.
- Membership criteria
- Professionalism as independence
- Professionalism as serving employers
- Qualities of professionals
- Models of professional roles: Savior, Bureaucratic servant, Guardian, Social servant, Social enabler and catalyst, Game player.
- Professional ideals and virtues: Professional responsibility—self-direction virtues, public spirited virtues, teamwork virtues, proficiency, virtues.
5. What do you understand by the term moral dilemma? Differentiate with moral autonomy.

**MORAL:**
- Refers only to personal behaviour.
- Refers to any aspect of human action.
- Social conventions about right or wrong conduct

Moral dilemmas are kind of situations where a difficult choice has to be made. The sorts of complexity and murkiness that may be involved in moral situations are,
- Vagueness
- Conflicting reasons
- Disagreement

The steps in confronting Moral Dilemmas:
- Identify the relevant moral factors and reasons.
- Gather all available facts that are pertinent to the moral factors involved.
- Rank the moral considerations in order of importance as they apply to the situation.
- Consider alternative courses of actions as ways of resolving dilemma, tracing the full implications of each.
- Get suggestions and alternative perspectives on the dilemma.
- By weighing all the relevant moral factors and reasons in light of the facts, produce a reasoned judgment.

**Moral autonomy:**
- Self-determining
- Independent
- Personal Involvement
- Exercised based on the moral concern for other people and recognition of good moral reasons

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**UNIT-4**

1. How will an engineer assess the safety and what are the reasons for Risk-Benefit Analysis?

The risks connected to a project or product must be identified.
- The purposes of the project or product must be identified and ranked in importance.
- Costs of reducing risks must be estimated.
- The costs must be weighed against both organizational goals and degrees of acceptability of risks to clients and the public.
- The project or product must be tested and then either carried out or manufactured.

- Risk-benefit analysis is concerned with the advisability of undertaking a project.
- It helps in deciding which design has greater advantages.
- It assists the engineers to identify a particular design scores higher with that of the another one for the safety and well being of the general public. Analyzing the risk and safety aspects of their designs can do this.
2. Explain about the US government wide definition of research misconduct.

In 2000, the US federal government adopted a uniform definition of research misconduct as fabrication, falsification, or plagiarism (FFP), which became effective in 2001. Institutions must apply this definition of misconduct to federally-funded research to receive funding. While institutions are free to adopt definitions of misconduct that go beyond the federal standard, it is not known how may do. We analyzed misconduct policies from 183 US research institutions and coded them according to thirteen different types of behavior mentioned in the misconduct definition. We also obtained data on the institution’s total research funding and public vs. private status, and the year it adopted the definition. We found that more than half (59%) of the institutions in our sample had misconduct policies that went beyond the federal standard. Other than FFP, the most common behaviors included in definitions were “other serious deviations” (45.4%), “significant or material violations of regulations” (23.0%), “misuse of confidential information” (15.8%), “misconduct related to misconduct” (14.8%), “unethical authorship other than plagiarism” (14.2%), “other deception involving data manipulation” (13.1%), and “misappropriation of property/theft” (10.4%). Significantly more definitions adopted in 2001 or later went beyond the federal standard than those adopted before 2001 (73.2% vs. 26.8%), and significantly more definitions adopted by institutions in the lower quartile of total research funding went beyond the federal standard than those adopted by institutions in the upper quartiles. Public vs. private status was not significantly associated with going beyond the federal standard.

Misconduct is a serious problem that undermines the integrity of research and public support for science. Although the incidence of research misconduct is thought to be low, it can have wide-ranging adverse impacts on universities, faculty, students, and the scientific community when it occurs (Martinson et al 2005, Fanelli 2009, Shamoo and Resnik 2009). One important policy issue concerning research misconduct is how to define it (Steneck 1999, Resnik 2003). After more than a decade of debate, on December 6, 2000, the US federal government announced a uniform definition of research misconduct that applies to all agencies supporting intramural or extramural research (Office of Science and Technology Policy 2000). Agencies were given one year to implement the policy. The federal definition of misconduct is “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results...(Office of Science and Technology Policy 2000, 76262).” This definition focuses on only three types of unethical behavior: fabrication, falsification, and plagiarism (FFP). Earlier definitions used by the Public Health Service, which funds National Institutes of Health (NIH) research, and the National Science Foundation had included FFP as well as other serious deviations from accepted practices (Steneck 1999). The federal government decided to eliminate the other serious deviations category from the misconduct definition on the grounds that it was inherently vague and therefore difficult to enforce (Resnik 2003).
3. Briefly explain the difference of Professional Judgment within the Nuclear Regulatory Commission (NRC).

The Nuclear Regulatory Commission (NRC) relies on its staff’s professional judgment in implementing its processes for overseeing the safety of U.S. commercial nuclear power reactors. In implementing this oversight, NRC allocates specific roles and responsibilities to resident inspectors assigned to each plant, regional officials at one of four regional offices responsible for most oversight activities, headquarters officials, and the nuclear power industry. This book examines how NRC implements its processes for overseeing the safety of commercial nuclear power reactors; the extent to which NRC consistently identifies and resolves findings through these processes; and NRC’s methods for developing lessons learned to improve its oversight and challenges, if any, NRC faces in doing so. The authors also discuss the inspector general’s assessment of the most serious management and performance challenges facing the NRC.

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Although it is difficult to define regulatory independence, the regulatory framework within which the NRC functions has been structured to insulate the Commission from outside influence in its decision making on issues affecting public health, safety, security and the environment. Key features of this framework are the following:

*Separation of functions:* As an organization, NRC not only has no responsibility for promoting or developing nuclear energy, but - importantly - is completely separate from any other government bodies having such responsibilities.

*Political influence:* As already noted, no more than three of the five commissioners can come from a single political party. In a country with two dominant political parties, this helps protect against partisanship, no matter how much control one party may have on other organs of government. Commissioners also serve relatively long (5 years) fixed terms, and may also
only be removed for "cause" (i.e., not because they have lost favor with the current political leadership.

Conflicts of interest: The Commission implements very strict that prohibit the commissioners or any of the NRC staff from having a financial or personal interest in entities or subject that may be subject to their regulatory decisions. Transparency is important in this regard. NRC employment regulations require annual financial disclosure reports to ensure that improper relationships are identified and eliminated.

Reporting: An important guarantee of independence is NRC’s ability to provide extensive safety-related information to the public, media, other governmental bodies, without review or clearance from any other government agency.

the NRC adopted a streamlined, combined CP/OL licensing process that is set forth in Part 52 of the CFR. Under this approach, an applicant with a pre-approved site and approved design can obtain a single license permitting him to operate the plant. Part 52 details the requirements for site and design approvals.

Even under the new Part 52, the reactor licensing process is lengthy and complex. The following summary identifies the major steps in the NRC process:

- The applicant must submit a safety analysis report (SAR) covering essential factors including: design criteria and information; comprehensive site data; safety features to prevent and mitigate hypothetical accidents; an environmental report on potential impacts; and economic information for purposes of an antitrust review (analyzing possible competitive economic effects).
- The application must also be reviewed by the Commission’s independent Advisory Commission on Reactor Safeguards (ACRS).
- The NRC staff prepares an environmental statement that is issued for public comment.
- A public hearing on the application is required before one of NRC’s atomic safety and licensing boards (ASLB). An ASLB is comprised with 3 members, two of which have technical backgrounds and one who is lawyer. Typically, an ASLB is chaired by the lawyer, who is expected to deal with legal and procedural issues.
- During this process, the Commission may issue a limited work authorization (LWA) to permit certain site preparation and initial construction activities on a "reasonable assurance" that the plant will meet safety and environmental requirements.
- After the public process has been completed a final safety analysis report (FSAR) is prepared, setting forth details justifying the issuance of the license.
- Under the Part 52 process, the Commission may issue an early site permit (valid for 10-20 years) and a standard plant design certification (valid for 15 years). A number of sites in the USA have received early site approval. Also, several standardized plant designs have been certified. A hearing is mandatory under Part 52, after completion of the ACRS and NRC staff reviews. An important
benefit of the combined Part 52 license is that issues resolved in early site permit or design certification proceedings cannot be considered at the combined license stage.

4. What are the different models of professional roles an engineer has to play to channelize towards the achievement of his objectives? Discuss

The Role of Engineering in Society: Engineering Design

Some will say that I'm an academic and that I'm supposed to be a scientist, but I have this craving to be an engineer. Waldron.

The National Research Council recently recognized the need for improvement in both engineering design and engineering design education. Although there are numerous articles on engineering design, we will concentrate on the interaction between engineers and society.

One of the first sources of confusion, particularly among those who are not engineers or scientists, is the distinction between science and engineering. The primary role of science is to develop knowledge and understanding of the physical universe. As pointed out by Davis and others, an important distinction is that this pursuit of knowledge (science) may occur largely without regard to societal need (or to societal implications). The direction of scientific research has been described by some as curiosity-based research which is not necessarily driven by the values of society. Societal values (and resulting priorities) do not necessarily define the bounds, direction or scope of scientific curiosity. This is not a criticism of science, for such is the nature of "inquiring." Furthermore, it is often not possible to determine relevance of a particular field of scientific inquiry to the future needs of society. Given this curiosity-driven process, the base of scientific knowledge about the physical universe may be represented by an amoebae-like structure uneven in its extent in the various directions with current scientific research efforts acting to extend its coverage (fig. 1).

The utilization of scientific knowledge over time establishes that some of the knowledge is immediately relevant to societal needs while other parts are less immediately relevant (society may never realize the relevance of a particular scientific inquiry). While the congruence of societal need with scientific knowledge is much more complex than indicated in this article, it may be represented for the purpose of this discussion by a Venn diagram as

C.Deepika, Assistant Professor
seen in figure 2. The authors maintain that it is this overlap of scientific knowledge with societal need, more specifically, the application of scientific knowledge to the needs of society, that is the domain of engineering (inter alia) (see below). Clearly, the extent of human enterprise is much more complex than is represented here. If, for example, it is in the interest of society to increase our store of scientific knowledge, then engineers and scientists who ply their trade in the frontiers of scientific research are both serving societal need. Nevertheless, our contention is that the central focus of the engineering profession is the application of scientific knowledge to meet societal needs.

![Figure 2](image)

This analogy can be extended by superimposing the distinction of the creative versus the analytical aspect of the human enterprise. We can represent this aspect of the human intellect by another Venn diagram shown in figure 3. As indicated in the diagram, one may pursue creative efforts without involving analytical skills, and one may apply analytical skills without entering the domain of creativity. For example, as engineers apply commercial software to the solution of an engineering problem, the application of analytical skills, may involve little or no creativity.

![Figure 3](image)

One may superimpose these two Venn Diagrams and use the resulting diagrams to examine engineering enterprise as shown in figure 4.
Considering the intersection of scientific knowledge with societal need (designated as the viewed as representing those sudden intuitive leaps often responsible for revolutionary advances in technology called "significant novelty" by Spier as well as those aspects of engineering, not yet fully supported by engineering science, that remain more art than science.

Current approaches to teaching used in engineering schools have been designed more for developing analytical skills (Sector A) than creative skills. The Accreditation Board for Engineering and Technology (ABET) identifies engineering as "that profession in which knowledge of the mathematical and natural sciences gained by study, experience, and practice is applied with judgment to develop ways to utilize, economically, the materials and forces of nature "for the benefit of mankind" (emphasis added). ABET further recognizes that "a significant measure of an engineering education is the degree to which it has prepared the graduate to pursue a productive engineering career that is characterized by continued professional growth". One can conclude that analytical skills are essential tools for engineers, but are not sufficient for a complete engineering education. An education that only uses classroom problems in which all variables are accurately known and only one correct answer exists not only misrepresents the situations engineers encounter in their jobs, but also does little to stimulate creativity. A trend toward using open-ended problems in the engineering classroom is a healthy step in the direction of more complete and relevant engineering education.

This four-circle representation of human endeavor (fig. 4) also offers a useful perspective for other enterprises. Sector 1, the intersection of analytical skills with societal needs outside the bounds of scientific knowledge might include economics and philosophy while sector 3 may encompass the arts. Sector 2 may be used to represent those societal needs outside the bounds of scientific knowledge that required both analytical and creative skills, perhaps including public policy, business administration, and music.
5. What is ethical human conduct? Explain in terms of values, policies and character with appropriate examples.

The right understanding gained through self-exploration also enables us to identify the definitiveness of human conduct which may also be called the ethical human conduct. It is the same for all human beings. So we are also able to understand the universality of ethical human conduct which is in consonance with the universal human values. Unless we have the right understanding, we are not able to identify the definitiveness of ethical human conduct. It can be understood in terms of the following:

1. Values (Mulya):
2. Policy (Niti):
3. Character (Charitra):

1. Values (Mulya): Competence of living in accordance with universal human values or the participation of a unit in the larger order - its natural characteristics or svabhava. The values of a human being can be enumerated as thirty, which are listed below:
   A) Values in self (Jivan Mulya):
      Happiness (Sukha): Definiteness of expectation (selecting/ tasting) based on definiteness of thought manifests as happiness.
      Peace (Shanti): Definiteness of thought based on definitiveness of desire manifests as peace.
      Satisfaction (Santosh): Definiteness of desire based on understanding manifests as satisfaction.
      Bliss (Ananda): Understanding based on realization manifests as bliss.
   B) Values in Human - Human Relationship (Sambandh Mulya):

UNIT-5

1. What are the ethical issues or questions that arise in environmental protection and Quote some examples of pollution that spoiled the environment?

NS
Often the questions that arise in the ethical issues are,
Who is affecting?
Who are affected?
Does the environment gets disturbed?
When do the disturbances takes place and how does it happen?
   Some examples of pollution that affected the environment are Bhopal gas tragedy, Chernobyl nuclear plant explosion, Artificial rains, Meuse valley disaster at Belgium, Oleum gas leak in Delhi, HPCL disaster in Vizag, Donova (USA)steel and chemical plant disaster, Tehri Dam in U. P. state, etc.

2. Give a critical review of the current management models in profession.
   Learning from the Systems in Nature and Traditional Practices: If we really wish to gain an insight into the holistic systems, we have a lot to learn from systems of nature and from traditional practices. With modern developments in science and technology, and their widespread application, an impression has grown that the nature is primarily for exploitation
as per the whims and fancies of human beings, the nature has to be tamed/controlled and exploited for human enjoyment. Further, it is believed that the systems in nature are all primitive and have to be replaced by man-made systems. This is how one looks at 'development'. Similarly, it is also believed that the traditional practices are all obsolete and have to be rejected outright. This arrogant attitude towards nature and the traditional know-how has caused much damage to humanity in recent times. It is high time we critically examine these beliefs and rectify them in the light of right understanding.

In reality, nature is not only our nourisher but also a learning ground. The human beings are an integral part of this self-sustaining nature and it is essential to understand its functioning and systems to live in harmony with it. After all, it is only by diligent study of nature that all the laws and principles governing various processes have been discovered by human beings. In a similar way, the systems and cycles of nature also need to be understood and emulated as required in man-made designs. Then only, we can correctly visualize and evolve the holistic way of living.

As for the traditional practices, it is true that with increase in knowledge and skills, and with changing needs, it is necessary to make improvisations in technologies and systems of human use, however, in order to do that it is essential to critically evaluate their strengths and weaknesses. It is important to identify the characteristics which have enabled the traditional practices to serve humanity for long periods. The eco-friendly and people-friendly characteristics of many traditional practices are very much worthy of our recognition and retention. Then we will be in a better position to utilize our present day knowledge to augment the systems and make them more effective, efficient and more suited to current needs. For example, we can learn a lot from the traditional practices of eco-friendly agriculture techniques, watershed management, eco-restoration, herbal formulations, preservation techniques, and artisanal practices and so on. It does not amount to going backwards but rather enables us to avail from the vast storehouse of wisdom and experience so that we become better prepared to take the leap forward in the right direction.

3. Comment on Profession – in the light of comprehensive human goal

Any profession is a channel for participation by human beings in the larger order in pursuance of comprehensive human goal. In the process, one is able to contribute towards the livelihood of one’s family and also participate in the larger order constituting the society and the nature around.

All these activities do require a certain degree of skill and are expected to be performed in consonance with the comprehensive human goal. Then only, these will be conducive to the sustained welfare of the individual as well as the society. The excellence or the success of any professional activity is to be judged from this comprehensive point of view only and not in terms of just wealth generation.

Accordingly, the profession is not only a means of earning one’s livelihood but a means of one’s evolution by appropriate participation in the larger order. It is an important activity to authenticate one’s understanding, whereby interact with other human beings and with rest of nature in a mutually fulfilling manner. Thus, profession is a ‘service’.

C.Deepika, Assistant Professor
4. Impact of Technology on Agriculture

Positive

- Increased Production

With the introduction of genetically engineered crops, farmers outputs have increased. These crops are engineered when they can stand harsh conditions as well as survived pests and diseases. They grow very first and the farmer gets back their return on investment (RIO) very first.

Negative

- Soil Pollution

Farmers have resorted to using chemicals and engineered fertilizers so that their plants grow faster. This has worked for the farmer in the short run, but after a while, the soil loses its natural fertility and the farmer will have to depend on artificial fertilizers which are expensive in the long run.

Impact Of Technology On Banking

Positive

- Electronic Banking

Banks have improved their services by using technology to introduce electronic banking. Customers can use online banking facilities to transfer money or get financial information, they can also use smart cards to withdraw or deposit money into their accounts.

Negative

- E-Cash and Financial Data Can Be Hacked
As we try to replace cash money with e-cash, like bit coin, etc we are faced with a problem of losing money very easily. Today their so many hackers online monitoring these electronic file transfers, though most merchants have formulated a trick of encrypting the files, still these hackers find their way and access the data. Another loophole is the exposure of financial details to dangerous people. Most of this information is stored on our computers. However, when you connect to the internet, an experienced hacker can access your computer via your IP and take advantage of all your financial details.

5. What do you mean by globalization?

Globalization is explained by many economist some defined it in a complex manner some defined it in a simple manner.

Globalization -is the process by which businesses or other organizations develop international influence or start operating on an international scale.

Globalization enhances and increase economic development and interdependence of nations economies across the world through a respond increase in cross border movement of goods and services, technologies and capital investments, to understand the main real reason of globalization we need to understand the economic development and its globalization.

Economic globalization happens in the increasing in the economic activities of a country which enhances its capital and national income.

While globalization has been expanding and increasing in incomes and economic growth in developing countries and lowered consumer prices in developing countries it also changes the power balance between developed and developing countries and affect the culture of each affected countries. While globalization has radically increased incomes and economic growth in developing countries and lowered consumer prices in developed countries. What impact economic development does it reduces the poverty of a country in generates incomes and employment which automatically enhances the living standards of the people which automatically results in positive globalization.

Globalization also bring changes in Currie alc changes which bring changes in ideas, meanings and values around the world in a way to extend and intensify social relations, the process is marked by the common consumption of cultures that have been diffused by the media and travels, it's also being globalization in intra sharif cultural exchange among various countries to give an examples is McDonald and Starbucks which are American companies, it is due to globalization which has enhanced McDonald's and Starbucks worldwide business, today in the day of internet where e-commerce is a boom these factors of globalization explains it perfectly where cultures and goods are exchanged through a click of internet where information are sent and received through many portals, music around the world has also seen globalization, a Spanish singer can be heard around the world not just in Spain and Spanish speaking countries, these are just few examples, you name it and think of anything globalization is taking place everywhere for the betterment, another globalization is of politics around the world happening, the world of World health organization, worlds
trade organizations, European Union, and other profitable and non-profitable organizations, this help the world countries together to work and build upon different and stronger economic development worldwide, globalization enhances the GDP of any and every country directly or indirectly.
16) Unit wise Question bank:

**UNIT-1**

2 Marks Questions with answers

Q1. Explain the process of value education.

**ANS.** The process for value education has to be that of self-exploration, which includes two things: verification at the level of natural acceptance and experiential validation in living. Self exploration is the process to find out what is valuable to me by investigating within myself, what is right for me, true for me, has to be judged within myself. Through self exploration we get the value of ourselves. Various aspects of reality facilitating the understanding of human values will be presented as proposals. We need to verify these proposals for our self and examine our living in this light.

Q2. Define Engineering Ethics.

**ANS**  Study of the moral issues and decisions confronting individuals and organizations engaged in engineering / profession.

Study of related questions about the moral ideals, character, policies and relationships of people and corporations involved in technological activity

Q3. What is the need to study Ethics?

**ANS**

- To responsibly confront moral issues raised by technological activity.
- To recognize and resolve moral dilemma.
- To achieve moral autonomy.

Q4. What do you understand by the value of an entity?

**ANS.** The value of any unit in this existence is its participation in the larger order of which it is part e.g. value of a pen is that it can write. Here writing is the participation of the pen in the bigger order in which pen, paper, human being, all are present. Value of an eye is that it can be used for seeing. Value of a vegetable plant is that it gives nutrition to animals and humans.

Q5. What is Emotional intelligence?

**ANS.** Emotional intelligence is the capability to realize, to create, to comprehend emotions and sentimental knowledge, and to reflectively control emotions and to improve emotional and mental growth.
3 Marks Questions with answers

Q1. What do you mean by values or human values?
ANS
Character oriented education that instills basic values and ethnic value in one’s psyche is called ‘Value Based Education’. The subject that enables us to understand ‘what is valuable’ for human happiness is called value education. Value education is important to help everyone in improving the value system that he/she holds and puts it to use. Once, one has understood his/ her values in life he/she can examine and control the various choices he/she makes in his/ her life. Value education enables us to understand our needs and visualize our goals correctly and also helps to remove our confusions and contradictions and bring harmony at all levels. It also helps remove our confusions and contradictions and enables us to rightly utilize the technological innovations.

Q2. Define Ethical misconduct.
ANS
Ethical misconduct disasters are specific, unexpected, and non-routine unethical events or a series of unethical events that create significant operational disruptions and threaten or are perceived to threaten an organization's continuity of operations.

Q3. What is the use of knowledge of risk acceptance to engineers?
ANS
Though past experience and historical data give better information about safety of products designing there are still inadequate. The reasons are
a. The information is not freely shared among industries
b. There also new applications of old technologies that provides available data, which are less useful.
c. So, in order to access the risk of a product, the engineers must share their Knowledge and information with others in a free manner.

Q4. Differentiate Moral and Ethics?
ANS
MORAL:
• Refers only to personal behavior.
• Refers to any aspect of human action.
• Social conventions about right or wrong conduct.

ETHICS:
• Involves defining, analyzing, evaluating and resolving moral problems and developing moral criteria to guide human behavior.
• Critical reflection on what one does and why one does it.
• Refers only to professional behavior.

C.Deepika, Assistant Professor
Q5. Differentiate Micro-ethics and Macro-ethics?

ANS

**Micro-ethics**: Deals about some typical and everyday problems which play an important role in the field of engineering and in the profession of an engineer.

**Macro-ethics**: Deals with all the societal problems which are unknown and suddenly burst out on a regional or national level.

5 Marks Questions with answers

Q1. What are the basic guidelines for value education?

ANS. The subject that enables us to understand ‘what is valuable’ for human happiness is called value education. In order to qualify for any course on value education, the following guidelines for the content of the course are important:

**Universal**: It needs to be applicable to all the human beings irrespective of cast, creed, nationalities, religion, etc., for all times and regions.

**Rational**: It has to appeal to human reasoning. It has to be amenable to reasoning and not based on dogmas or blind beliefs.

**Natural and verifiable**: It has to be naturally acceptable to the human being who goes through the course and when we live on the basis of such values it leads to our happiness. It needs to be experientially verifiable, and not based on dogmas, beliefs or assumptions.

**All encompassing**: Value education is aimed at transforming our consciousness and living. Hence, it needs to cover all the dimensions (thought, behaviour, work and realization) and levels (individual, family, society, nature and existence) of human life and profession.

**Leading to harmony**: The value education ultimately is targeted to promote harmony within the individual, among human beings and with nature.

Q2. What is the need for value education?

ANS. The subject that enables us to understand ‘what is valuable’ for human happiness is called value education. Need for value education is:

**Correct identification of our aspirations.** The subject which enables us to understand ‘what is valuable’ for human happiness is called ‘value education’ (VE). Thus, VE enables us to understand our needs and visualize our goals correctly and also indicate the direction for their fulfillment. It also helps to remove our confusions and contradictions and bring harmony at all levels.
Understanding universal human values to fulfill our aspirations in continuity. Values form the basis for all our thoughts, behaviours and actions. Once we know what is valuable to us, these values becomes the basis, the anchor for our actions. We also need to understand the universality of various human values, because only then we can have a definite and common program for value education. Then only we can be assured of a happy and harmonious human society.

Complimentarily of values and skills. To fulfill our aspirations both values and skills are necessary. When we identify and set the right goals and produced in right direction. This is known as value domain, the domain of wisdom, and when we learn and practices to actualize this goal to develop the techniques to make this happen in real life, in various dimensions of human Endeavour (struggle). This is known as domain of skills.

Hence, there is an essential complementarily between values and skills for the success of any human Endeavour. For example, I want to lead a healthy life. Only wishing for good health will not help me keep my body fit and healthy and without having understood the meaning of health, I will not be able to choose things correctly to keep my body fit and healthy.

Evaluation of our beliefs. Each one of us believes in certain things and we base our values on these beliefs, are they false or true which may or may not be true in reality. These believes come to us from what we read, see, hear, what our parents tells us, our friends talk about, what them magazines talk of, what we see from TV etc. Value Education helps us to evaluate our beliefs and assumed values.

Technology and human values. The present education system has become largely skill-based. The prime emphasis is on science and technology. However, science and technology can only help to provide the means to achieve what is considered valuable. It is not within the scope of science and technology to provide the competence of deciding what really is valuable. Value Education is a crucial missing link in the present education system. Because of this deficiency, most of our efforts may prove to be counterproductive and serious crises at the individual, societal and environmental level are manifesting.

Q3. Define the terms Values, Morals & Ethics?
ANS

Values are rules. Values are the rules by which we make decisions about right and wrong, should and shouldn't, good and bad. They also tell us which are more or less important, which is useful when we have to trade off meeting one value over another.

Morals are how we judge others. Morals have a greater social element to values and tend to have a very broad acceptance. Morals are far more about good and bad than other values. We thus judge others more strongly on morals than values. A person can be described as immoral, yet there is no word for them not following values. Morality can be described as a core set of values and beliefs that act as a guide when formulating courses of action.
Professional Ethics

Ethics are professional standards. Ethics are thus internally defined and adopted, whilst morals tend to be externally imposed on other people. Ethics is the branch of philosophy concerned with human values and conduct, moral duty, and obligation. Basically, ethics is concerned with what people might describe as right and wrong human conduct.

Q 4. What are the requirements to fulfill basic human aspirations?
ANS. Our basic aspirations are happiness (mutual fulfillment) and prosperity (mutual prosperity). Happiness is ensured by the relationships with other human beings and prosperity is ensured by working on physical facilities.

Right Understanding: This refers to higher order human skills – the need to learn and utilize our intelligence most effectively.

Good Relationships: This refers to the interpersonal relationships that a person builds in his or her life— at home, at the workplace and in society.

Physical Facilities: This includes the physiological needs of individuals and indicates the necessities as well as the comforts of life. It means the feeling of having or being able to have more physical facilities than is needed.

Happiness- with human beings
Mutual prosperity- with rest of nature

In order to resolve the issues in human relationships, we need to understand them first, and this would come from ‘right understanding of relationship’. Similarly in order to be prosperous and to enrich nature, we need to have the ‘right understanding’. The ‘right understanding’ will enable us to work out our requirements for physical facilities and hence correctly distinguish the difference between wealth and prosperity. With nature as well, we need to understand the harmony in nature, and how we can complement this harmony.

Q 5. Define Human Values?
ANS

Human values are the foundation of social order, justice and progress. Human values are social and ethical norms common to all cultures and societies, as well as religions. They represent a melding of social progress and spiritual growth.

Timeless Human Values
- A Deep Caring For Life
- Responsibility
- Non-violence
- Love & Compassion
- Friendliness & Co-operation
- Generosity & Sharing

C.Deepika, Assistant Professor
Professional Ethics

- Integrity, Honesty and Sincerity
- Moderation
- Service
- Commitment & Responsibility
- Peace, Contentment, Enthusiasm
- Trust
- Unity
- Humor
- Acceptance
- Respect

**Objective Question With Answers**

1. Many human values seem good or right due to:
   a. Positive feelings. b. Internal happiness. c. Natural acceptance. d. All the above.

2. Competence in professional ethics refers to:
   a. Ability to utilize power effectively. b. Ability to augment the universal human order.
   c. Ability to make profit. d. Both b and c.

3. An individual people aspiring for the universal human order will be:

4. The purpose of value education is to:
   a. Foster universal core values. b. Make the syllabus easy.
   c. Develop values in individuals. d. Both (a) and (c)

5. Self exploration uses two mechanisms – natural acceptance and:

6. Harmony should be maintained in:
   d. All the above.

7. Sah-astitva means:

8. A harmonious world is created by values at 4 levels. These are:
   c. School, home, office, temple. d. None of the above.

9. A country which has transited to the universal human order is likely to have:
   c. More say in the UNO. d. None of the above.

C. Deepika, Assistant Professor
Professional Ethics

10. As individual people aspiring for the universal human order will be:
   a. More rich.
   b. More responsible socially and ecologically.
   c. More powerful.
   d. More well travelled.

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ANSWERS: 1)d 2)d 3)a 4)d 5)a 6)d 7)a 8)b 9)a 10)b

Fill In The Blanks Question With Answers

1. The continuity of a plant species is maintained in nature by ________ method.
2. Human being has __________ conformance.
3. The systems in nature are ________ and__________.
4. ________ is equivalent to the natural world, physical world or material world.
5. There is mutual__________ among the four orders of nature. (UPTU 2009 - 10)
6. The four orders of nature are material order, plant order, _____ order and human order.
7. The definitiveness of human conduct in terms of values, policies and character is termed as _________.
8. Developing ethical competence in the profession is the only effective way to ensure _________.
9. The term ethics has been taken from the Greek word ________ which means character.
10. _________ are considered the moral standards by which people judge behaviour.

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<td>Ethics</td>
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</table>
Q1. What are the basic ethical principles?

ANS
- Respecting autonomy. The individual has the right to act as a free agent.
- Doing no harm (Nonmaleficence) Our interactions with people (within the helping professions or otherwise) should not harm others.
- Benefiting others (Beneficence)
- Being just (Justice)
- Being faithful (Fidelity)

Q2. Define deontology.

ANS
In moral philosophy, deontological ethics or deontology is the normative ethical position that judges the morality of an action based on rules. It is sometimes described as "duty-" or "obligation"

Q3. Define Casuist theory.

Ans: Casuist theory is a method in applied ethics and jurisprudence, often characterised as a critique of principle- or rule-based reasoning. Casuistry is reasoning used to resolve moral problems by extracting or extending theoretical rules from particular instances and applying these rules to new instances.

Q4. Define Moral Autonomy

ANS
- Self-determining
- Independent
- Personal Involvement
- Exercised based on the moral concern for other
- People and recognition of good moral reasons

Q5. Give the drawbacks of Utilitarianism?

ANS
- Sometimes what is best for the community as a whole is bad for certain individuals in the community.
- It is often impossible to know in advance which decision will lead to the most good.
Q1. What are the steps in confronting Moral Dilemmas?
ANS
Identify the relevant moral factors and reasons.
- Gather all available facts that are pertinent to the moral factors involved.
- Rank the moral considerations in order of importance as they apply to the Situation.
- Consider alternative courses of actions as ways of resolving dilemma, tracing the full implications of each.
- Get suggestions and alternative perspectives on the dilemma.
- By weighing all the relevant moral factors and reasons in light of the facts, produce a reasoned judgment.

Q2. How self enjoys the activities of the body?
ANS: There is a relation between the self and body that body act as an instrument of self. Whatever self thinks body performs it physically. Body does not decide itself. We can verify this by the following discussion.

I am the seer: When we are reading a book or listening, when someone is explaining something to us, when we are watching a scenery or when we are thinking – we are engaged in the activities of ‘seeing’ or understanding. Now when we see some nice scenery we say ‘I am seeing’ that means our self ‘I’ see via the eyes, the eyes don’t see, they are just instruments, that unable me to see something outside.

I am the doer: once I have seen/ understood something, I am the one who decides what to do or not to do. I am the doer. For example, when I see the scenery I am the one who decides to take a picture of the scenery. I use my hands to pick camera and click a picture. The hands in the body are thus used as an instrument. In this way I work with my hands and legs.

I am the enjoyer: I saw the scenery and I took the picture. I am the seer and doer so far. When I see the picture I like it. I am the one that enjoys it. Thus there is a continuity of being the seer, doer and enjoyer. Similarly when I eat, I am the one that gets the taste – from the tongue.

Q3. Give the drawbacks of Utilitarianism?
ANS
- Sometimes what is best for the community as a whole is bad for certain individuals in the community.
- It is often impossible to know in advance which decision will lead to the most good.

Q4. Differentiate Ethical Relativism and Ethical Egoism?
ANS
Ethical egoism – the view that right action consist in producing one’s own good.
Ethical relativism – the view that right action is merely what the law and customs of one’s society require.

C.Deepika, Assistant Professor
Q5. Define Ethical Pluralism?
ANS
Ethical pluralism is the view that there may be alternative moral perspectives that are reasonable, but no one of which must be accepted completely by all rational and morally concerned persons.

5 Marks Questions with answers
UNIT-II

1. What do you understand by the term moral dilemma? Differentiate with moral Autonomy.
ANS
MORAL:
- Refers only to personal behavior.
- Refers to any aspect of human action.
- Social conventions about right or wrong conduct
- Moral dilemmas are kind of situations where a difficult choice has to be made. The sorts of complexity and murkiness that may be involved in moral situations are Vagueness Conflicting reasons Disagreement

The steps in confronting Moral Dilemmas:
- Identify the relevant moral factors and reasons.
- Gather all available facts that are pertinent to the moral factors involved.
- Rank the moral considerations in order of importance as they apply to the situation.
- Consider alternative courses of actions as ways of resolving dilemma, tracing the full implications of each.
- Get suggestions and alternative perspectives on the dilemma.
- By weighing all the relevant moral factors and reasons in light of the facts, produce a reasoned judgment.

Moral autonomy:
- Self-determining
- Independent
- Personal Involvement
- Exercised based on the moral concern for other people and recognition of good moral reasons

2. Explain with examples the various ethical theory available for “right of action”
ANS
Theories about right action:
- Utilitarianism: most good for the most people (Act utilitarianism and Rule utilitarianism)
- Duty ethics: duties to respect persons
- Rights ethics: human rights
Professional Ethics

- Virtue ethics: virtues and vices

**Drawbacks of Utilitarianism:**

- Sometimes what is best for the community as a whole is bad for certain individuals in the community.
- It is often impossible to know in advance which decision will lead to the most good.

**Drawback of Duty Ethics:**

- Duty ethics does not always lead to a solution which maximizes the public good.

**Drawbacks of Rights Ethics:**

- How do we prioritize the rights of different individuals?
- It often promotes the rights of individuals at the expense of large groups/society.

Uses of ethical theories:
- *Resolving moral dilemmas*
- *Justifying moral obligations*

*Relating professional and ordinary morality*

3. Discuss in detail about Self-interest, Customs and Religion.

**ANS**

**Self-interest:**

- Ethical egoism— it says that the sole duty of an individual is to maximize his/her own Good.

**Customs:**

- Ethical relativism— Ethical relativism says that actions are morally right when law or custom approves them; they are wrong when they violate laws or customs.
- Ethical pluralism— Ethical pluralism says that there may be alternative moral perspectives that are reasonable, but no one of which must be accepted completely by all rational and morally concerned persons.
- Descriptive relativism — the statement that beliefs about values differ from culture to culture.
- Moral relationalism — the view that moral judgments should be made in relation to factors that may vary from case to case.

**Religion:**

Divine command ethics—it says that an act is right means it is commanded by God, and to say it is wrong means it is forbidden by God.

Christianity—virtues of hope, faith and love.
Judaism—virtue of righteousness
Buddhism—virtue of compassion

God centered religion (theistic)—Judaism, Christianity, Islam.

Not emphasizing belief in God (non-theistic)—Buddhism—call for faith in Right path.

C.Deepika, Assistant Professor
4. ‘Human being is co-existence of the Self and the Body’—elaborate on this statement.

ANS

The human being is the co-existence of ‘I’ and the body, and there is exchange of information between the two, i.e. ‘I’ and body exist together and are related. There is a flow of information from ‘I’ to the body and from body to the ‘I’. We can make this distinction between the self and the body in three ways in terms of the needs, activities and the types of these two entities. All the needs of I, say respect, trust, etc., can be called as Happiness (such), while the needs of body are physical facilities (suvidha) like food. The two things are qualitatively different. There is no relevance of quantity for the needs of I as it is qualitative, while the needs of body are quantitative, and they are limited in quantity.

The activities of ‘I’ are activities like, desire, thinking, selection, while the activities of body are activities like eating, breathing etc. The mode of interaction of ‘I’ includes knowing, assuming, recognizing and fulfilment. The fulfilment depends on recognition depends on assumptions and assumptions depends on knowing or not knowing (beliefs). If assuming is based on knowledge, then recognition will be correct and fulfilment will be correct. If assuming is not based on knowledge, then things may go wrong. The mode of interaction of body is only recognizing and fulfilling. Self is a conscious entity and the body is a material entity, or physic-chemical in nature. Thus we can say:

To conclude we can say that the human being can be understood in terms of a co-existence of two entirely distinct entities, namely sentient ‘I’ and material body. Their needs and activities are quite different and have to be understood accordingly. But these two constituents of human being are to act in close synergy with each other
5. Explain the activities of knowing, assuming, recognizing and fulfillment with one examples.

ANS

If we look at the variety of activities that we are engaged in commonly – we see that we can put them in three categories:

1. Activities that are going on in the self
2. Activities that are going on in the body
3. Activities involving both the self and the body

Knowing, assuming, recognizing and fulfilling are the activities involving both the self and the body.

1. Activities of recognizing and fulfilling in the body: Apart from the activities of Breathing, Heartbeat, Digestion etc., the activities of the body can also be understood as recognition and fulfilment. In fact, the mutual interaction between any two material entities can be understood as recognition and fulfilment of their relationship. For example when we are thirsty and drink water, the body absorbs the water to the extent needed and uses for the nourishment of the various organs. Here, body recognizes its relation with water and fulfils it.

Recognizing □ Fulfilling

2. Activities of knowing, assuming, recognizing and fulfilling in the self (‘I’): When it comes to self (jivan or ‘I’), which is a conscious entity, in addition to ‘recognizing and fulfilling’, there is also the activity of assuming and that of knowing. In fact, recognizing and fulfilling in case of human beings will depend upon knowing and/or assuming.

a. We assume – We all make assumptions and our response (recognition and fulfilment) is dependent on the assumption. For ex.: If I see a snake and assumed it to be a rope, I shall respond differently to it, than if I take it to be a snake itself. We call this activity ‘assuming or manana’.

b. We recognize – We all recognize things today, we recognize a variety of things. Like, we recognize water, our parents, friends, etc. We call this activity ‘recognizing or pahachaanana’. The recognizing in ‘I’ depends on assuming.

c. We fulfil – The response that follows recognition is called the activity of ‘fulfilling or nirvaha karna’. The fulfilment depends on the recognition. For ex.: Once we recognize water, we take it.

Taken together we can write it as (in I):
Professional Ethics

Assuming  □  Recognizing  □  Fulfilling

There is another activity that exists in us (in ‘I’). This activity is called ‘knowing’. Knowing means we have the right understanding – the understanding of harmony at all levels of our living. When we have the right understanding, when we have the knowledge of reality, it is definite, and then assuming becomes according to the knowing, and hence recognizing and fulfilling becomes definite, or according to knowing. Until then, it is subject to beliefs and assumptions, and this keeps changing. When we list these down:

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<td>Breathing, heart-beat, etc.</td>
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<td>Knowing, assuming, recognizing, fulfilling</td>
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**Objective Question With Answers**

1. The purpose of value education is to:
   a. Foster universal core values. b. Make the syllabus easy.
   c. Develop values in individuals. d. Both (a) and (c)

2. Self exploration uses two mechanisms – natural acceptance and:

3. Harmony should be maintained in:
   d. All the above.

4. Sah-astitva means:

5. A harmonious world is created by values at 4 levels. These are:
   c. School, home, office, temple. d. None of the above.

6. Many human values seem good or right due to
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7. Competence in professional ethics refers to:
   a. Ability to utilize power effectively. b. Ability to augment the universal human order.
   c. Ability to make profit. d. Both b and c.

8. An individual people aspiring for the universal human order will be

C.Deepika, Assistant Professor
Professional Ethics


9. A country which has transited to the universal human order is likely to have:
   c. More say in the UNO. d. None of the above.

10. As individual people aspiring for the universal human order will be:

ANSWERS

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Fill In The Blanks Question With Answers

1. Each human being is co-existence of the ______ and the______.

2. The __________ does not assume things.

3. ______ is the feeling of responsibility for nurturing, protecting and Right utilizing the body.

4. Where there is harmony among the parts of the body, it is known as __________.

5.______ is the basis of ______

6. ________ is vital for the ______

7. With the help of the _______, self-explores and interact with rest of the Nature.

8. The system of the body works in a __________ way.

9. Human body is an instrument to facilitate ______.

10. ________ is the implication of ________ in ________.

Answers:

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UNIT-III

2 Marks Questions With Answers

Q1. Why the moral education is important?

ANS
The second task of moral education is to provide students with the intellectual resources that enable them to make informed and responsible judgments about difficult matters of moral importance. Both are proper and important tasks of schools—and both cut across the curriculum.

Q2. What is the method used to solve an Ethical problem?

ANS
- Recognizing a problem or its need.
- Gathering information and defining the problem to be solved or goal to be achieved.
- Generating alternative solutions or methods to achieve the goal.
- Evaluate benefits and costs of alternate solutions.
- Decision making & optimization.
- Implementing the best solution.

Q3. What are the general features of morally responsible engineers?

ANS
a. Conscientiousness.
b. Comprehensive perspective.
c. Autonomy.
d. Accountability.

C.Deepika, Assistant Professor
Q4. What are the responsibilities and rights in professional ethics?

ANS

The right of professional conscience is the moral right to exercise professional judgement in pursuing professional responsibilities. The exercise of moral reflection and conscience that justifies professional duties is necessary, with respect to that duty.

Q5. What are the senses of Responsibility?

ANS

a. a virtue
b. obligations
c. general moral capacities of people
d. liabilities and accountability for actions
e. blameworthiness or praiseworthiness

3 Marks Questions With Answers

Q1. What are the types of Theories about Morality?

ANS

- Virtue ethics – Virtues and vices
- Utilitarianism – Most good for the most people
- Duty ethics – Duties to respect people
- Rights ethics – Human rights

Q2. Define Code and Enumerate the roles of codes

ANS

Code is a set of standards and laws.

Role of codes are:

- Inspiration and Guidance
- Support
- Deterrence and Discipline
- Education and Mutual Understanding
- Contributing to the Profession’s Public Image
- Protecting the Status Quo
- Promoting Business Interests
**Q3. Give the limitations of codes?**

**ANS**

- A Codes are restricted to general and vague wording.
- A Codes can’t give a solution or method for solving the internal Conflicts.
- A Codes cannot serve as the final moral authority for professional conduct.
- A Codes can be reproduced in a very rapid manner.

**Q4. What are the attributes to a profession? What are the two models of a professional society?**

**ANS**

The attributes to a profession are:

* Knowledge
* Organization
* Public good

The two models of a professional society are:

* Social contract model
* Business model

**Q5. What are the general features of morally responsible engineers?**

**ANS**

a. Conscientiousness.
b. Comprehensive perspective.
c. Autonomy.
d. Accountability.

---

**5 Marks Questions With Answers**

**1. In what way can we say that the human body is a self organized unit?**

**ANS**

The human body is a self organized and highly sophisticated mechanism. The body is made up of several organs and glands and the different parts of the body keep working in a close co-ordination. All the activities keep the body fit for the use of ‘I’ (self or jivana) so that ‘I’ and the body may work in synergy as a human being. The silent aspects of this harmony b/w ‘I’ and the body are:

1. The body acts according to the needs of I.
2. There is harmony among the parts of the body.
3. What our body follow only by the permission of I.
4. There is a strong coupling b/w I and the body. If I am in disharmony e.g. in anger or stress or despair. It immediately starts affecting the body adversely.
Professional Ethics

5. There are many diseases of the body that are caused or accentuated due to disharmony in I. These are called psychosomatic diseases such as asthma, migraine, hyper-tension etc. On the other hand, when there is a strong disturbance in the body manifesting in the form of severe pain, it distracts I from its normal functions.

6. I have the feeling of sanyama for the body and the body has swasthya. Sanyama is basic to swasthya.

2. What are the rules framed by NSPE in case of professional advertisements?

ANS
The rules framed by NSPE (National Society of Professional Engineers) in case of Professional advertisements are as follows:
The use of statements containing a material misrepresentation of fact or omitting a material fact necessary to keep the statement from being misleading.
  1. Statements intended or likely to create an unjustified expectation.
  2. Statements containing prediction of future success.
  3. Statements containing an opinion as to the quality of the engineer’s services.
Statements intended or likely to attract clients by the use of slogans, jingles or sensational language format.

3. Explain the problems faced due to differentiation in relationship.

Ans. Differentiation based on sex/gender: Issue of women's rights, and women protesting and demanding for equality in education, in jobs, and in peoples' representation. People are insecure and afraid of one another based on their gender. Differentiation based on race: there are many movements and protect against racial discrimination and demands for equality, racial attacks, movements against cast discrimination has people living in fear of such racism, racist attacks, casticism and discrimination.

Differentiation based on age: Protests and movements demanding for equal rights for children on the one hand and for rights for elderly people on the other, generation gap

Differentiation based on wealth: Class struggle and movements to do away with class-differentiation. Many people suffering from a lack of self-esteem and some even committing suicide,

Differentiation based on post: Protests against high handed government officials. At the level of the individual, leads to depression, etc.

Differentiation based on 'isms: Fights, turmoil, terrorism and war, people converting from one Ism to another in order to be able to get more respect.

Differentiation based on sects: Countless religions and sects and each sect has its own movement to ensure that there is no discrimination against people of their belief. Demands for special provisions in jobs and in education.

C.Deepika, Assistant Professor
4. State Babylon’s Building Code?
ANS
If a builder has built a house for a man and has not made his work sound, and the house which he has built has fallen down and so caused the death of the householder, that builder shall be put to death.
If it causes the death of the householder’s son, they shall put the builder’s son to death. If it causes the death of the householder’s slave, he shall give slave for slave to the householder.
If it destroys property he shall replace anything it has destroyed; and because he has not made sound the house which he has built and it has fallen down, he shall rebuild the house which has fallen down from his own property.
If a builder has built a house for a man and does not make this work perfect and the wall bulges, that builder shall put that wall into sound condition at his own cost.

5. Explain professions and professionalism.
ANS
Professions:
Knowledge, Organization, Public good.
Membership criteria
Professionalism as independence
Professionalism as serving employers
Qualities of professionals
Models of professional roles: Savior, Bureaucratic servant, Guardian, Social servant, Social enabler and catalyst, Game player.
Professional ideals and virtues: Professional responsibility—self-direction virtues, public spirited virtues, teamwork virtues, proficiency, virtues.

6. What do u understand by the term moral dilemma? Differentiate with moral autonomy.
ANS
MORAL:
Refers only to personal behavior.
Refers to any aspect of human action.
Social conventions about right or wrong conduct
Moral dilemmas are kind of situations where a difficult choice has to be made. The sorts of complexity and murkiness that may be involved in moral situations are, Vagueness
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3. An individual people aspiring for the universal human order will be:
4. A country which has transited to the universal human order is likely to have:
   c. More say in the UNO. d. None of the above.
5. As individual people aspiring for the universal human order will be:
6. According to most Provincial and Territorial Acts, which activity by a professional member would be considered unethical?
   A. Not charging a fee for presenting a speech
   B. Signing plans prepared by an unknown person without thoroughly reviewing those plans
   C. Reviewing the work of another member with that member’s consent
   D. Providing professional services as a consultant
7. Which of the following is an example of a fraudulent, contractual misrepresentation?
   A. A party is coerced into signing a contract by means of intimidation
   B. A party knowingly makes false statements to induce another party into a contract
   C. A party induces his son-in-law to sign an unfair contract
   D. A party unknowingly provides false information about a portion of a contract
8. Which type of original work below is automatically protected by copyright upon creation?
   A. Paintings
   B. Inventions
   C. Clothing designs
   D. Signatures
9. Which of the following is the most common job activity of top-level managers?
   A. Writing and reading corporate financial reports
   B. Developing and testing new products
   C. Designing and implementing production systems
   D. Directing and interacting with people

10. According to the concept of moral intensity, a worker is most likely to behave ethically and legally when a
    a. manager observes his or her behaviour closely
    b. the worker has intense morals.
    c. the consequences of the act are minor.
    d. the consequences of the act are substantial

ANSWERS: 1) d 2) d 3) a 4) a 5) b 6) b 7) b 8) a 9) d 10) d

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**Fill In The Blanks With Answers**

1. Education- right living leads to ______________.
2. The process of education and right living leads to ________ in the individual.
3. The program for health and sanyam leads to feeling of ________ in family.
4. Ensuring justice in relationship, on the basis of values leads to ________ in society.
5. Suraksha of nature via enrichment protection and right utilization leads to ________ in nature.
6. Production and work for physical facilities leads to _____ in family and ____ with nature
7. ________ is the foundational value in relationship
8. The foundational value in relationship is ________
9. .The ability to fulfill the aspirations is called ________
10. . To be assured of others at all the time is the feeling of ________.

ANSWERS:

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UNIT-IV

2 Marks Questions With Answers

Q1. Define work ethics
ANS
By one’s work one cannot harm others. Any worker cannot escape accountability. Worker has the moral responsibility to see that no other person’s right, private or freedom is impaired or transgressed.

Q2. What do you mean by co-existence?
ANS
Co-existence in nature means there is a relationship and complementarity among all the entities in nature including human beings. Co-existence is a state in which two or more groups are living together while respecting their differences and resolving their conflicts non-violently. Co-existence has been defined in numerous ways:
1. To exist together (in time or space) and to exist in mutual tolerance.
2. To learn to recognize and live with difference.
3. To have a relationship between persons or groups in which none of the parties is trying to destroy the other.
4. To exist together (in time or place) and to exist in mutual tolerance.

Q3. Define human rights.
ANS
Human rights are moral entitlements that every individual in the world possesses simply in virtue of the fact that he or she is a human being. In claiming our human rights, we are making a moral claim, normally on our own government, that you cannot do that, because it is a violation of my moral sphere and my personal dignity. No-one – no individual, no government – can ever take away our human rights.

Q4. What are the problems with the law in engineering?
ANS
a. Minimal compliance
b. Many laws are without enforceable sanctions.
Q5. Why do some groups require special human rights?

ANS
No, some groups, such as the Roma in Europe or Dalits and scheduled castes in India, have suffered such long-term discrimination in our societies that they need special measures to enable them to access general human rights standards on an equal basis with others. Years of institutionalised discrimination and stereotypes, and outright hatred and obstacles, mean that just announcing generally applicable rights to them, and expecting that this is enough to ensure equality, would be farcical.

3 Marks Questions with answers

Q1. What is the relationship between the Loyalty to the company and Professional Responsibility to the public?
ANS
i. Acting on professional commitments to the public can be a more effective way to serve a company than a mere willingness to follow company orders.
ii. Loyalty to companies or their current owners should not be equated with merely obeying one’s immediate supervisor
iii. An engineer might have professional obligations to both an employer and to the public that reinforce rather than contradict each other.

2. Define Institutional Authority and Expert Authority
ANS

Institutional Authority

Institutional Authority is acquired, exercised and defined within organizations. It may be defined as the institutional right given to a person to exercise power based on the resources of the institution.

Expert Authority

Expert authority is the possession of special knowledge, skill or competence to perform task or give sound advice.

Q3. What is the basic ethical and moral responsibility of a manager-engineer?
ANS
Ethical responsibility:
The basic ethical responsibilities of managers are to produce a good product or valuable service, only after taking into consideration maintaining respect for human beings, which includes customers, employees and the general public.
Moral responsibility:
As managers, engineer’s moral responsibility is to produce safe and useful products
that are also profitable.

Q4. What are the two general ways to apply ethical theories to justify the basic right of professional conscience and Define Employee Rights?

ANS
i. Proceed piecemeal by reiterating the justifications given for the specific professional duties.

ii. Justify the right of professional conscience, which involves grounding it more directly in the ethical theories.

Employee Rights
Employee rights are rights, moral or legal, that involve the status of being an employee. They include some professional rights that apply to the employer-employee relationship.

Q5. What are the general procedures for implementing the right to due process? Differentiate Human Rights and Professional Rights.

ANS
i. Written explanations should be established that is available to all employees who believe their rights have been violated.

ii. An appeals procedure should be established that is available to all employees who believe their rights have been violated.

Human Rights and Professional Rights
Human Rights – Possessed by virtue of being people or moral agents.
Professional Rights – Possessed by virtue of being professional having special moral responsibilities.

5 Marks Questions With Answers

Q1. How will an engineer assess the safety and what are the reasons for Risk-Benefit Analysis?

ANS
The risks connected to a project or product must be identified.
   The purposes of the project or product must be identified and ranked in importance.
   Costs of reducing risks must be estimated.
   The costs must be weighed against both organizational goals and degrees of acceptability of risks to clients and the public.
   The project or product must be tested and then either carried out or manufactured.
   i. Risk-benefit analysis is concerned with the advisability of undertaking a project.
   ii. It helps in deciding which design has greater advantages.
   iii. It assists the engineers to identify a particular design scores higher with that of the another one for the safety and well being of the general public. Analyzing the risk and safety aspects of their designs can do this.
2. Explain about the US government wide definition of research misconduct.

ANS

In 2000, the US federal government adopted a uniform definition of research misconduct as fabrication, falsification, or plagiarism (FFP), which became effective in 2001. Institutions must apply this definition of misconduct to federally-funded research to receive funding. While institutions are free to adopt definitions of misconduct that go beyond the federal standard, it is not known how many do. We analyzed misconduct policies from 183 US research institutions and coded them according to thirteen different types of behavior mentioned in the misconduct definition. We also obtained data on the institution’s total research funding and public vs. private status, and the year it adopted the definition. We found that more than half (59%) of the institutions in our sample had misconduct policies that went beyond the federal standard. Other than FFP, the most common behaviors included in definitions were “other serious deviations” (45.4%), “significant or material violations of regulations” (23.0%), “misuse of confidential information” (15.8%), “misconduct related to misconduct” (14.8%), “unethical authorship other than plagiarism” (14.2%), “other deception involving data manipulation” (13.1%), and “misappropriation of property/theft” (10.4%).

Significantly more definitions adopted in 2001 or later went beyond the federal standard than those adopted before 2001 (73.2% vs. 26.8%), and significantly more definitions adopted by institutions in the lower quartile of total research funding went beyond the federal standard than those adopted by institutions in the upper quartiles. Public vs. private status was not significantly associated with going beyond the federal standard.

Misconduct is a serious problem that undermines the integrity of research and public support for science. Although the incidence of research misconduct is thought to be low, it can have wide-ranging adverse impacts on universities, faculty, students, and the scientific community when it occurs (Martinson et al 2005, Fanelli 2009, Shamoo and Resnik 2009). One important policy issue concerning research misconduct is how to define it (Steneck 1999, Resnik 2003). After more than a decade of debate, on December 6, 2000, the US federal government announced a uniform definition of research misconduct that applies to all agencies supporting intramural or extramural research (Office of Science and Technology Policy 2000). Agencies were given one year to implement the policy. The federal definition of misconduct is “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research result(Office of Science and Technology Policy 2000, 76262).” This definition focuses only on three types of unethical behavior: fabrication, falsification, and plagiarism (FFP). Earlier definitions used by the Public Health Service, which funds National Institutes of Health (NIH) research, and the National Science Foundation had included FFP as well as other serious deviations from accepted practices (Steneck 1999). The federal government decided to eliminate the other serious deviations category from the misconduct definition on the grounds that it was inherently vague and therefore difficult to enforce (Resnik 2003).
3. Briefly explain the difference of Professional Judgment within the Nuclear Regulatory Commission (NRC).

**Ans.** The Nuclear Regulatory Commission (NRC) relies on its staff’s professional judgment in implementing its processes for overseeing the safety of U.S. commercial nuclear power reactors. In implementing this oversight, NRC allocates specific roles and responsibilities to resident inspectors assigned to each plant, regional officials at one of four regional offices responsible for most oversight activities, headquarters officials, and the nuclear power industry. This book examines how NRC implements its processes for overseeing the safety of commercial nuclear power reactors; the extent to which NRC consistently identifies and resolves findings through these processes; and NRC’s methods for developing lessons learned to improve its oversight and challenges, if any, NRC faces in doing so. The authors also discuss the inspector general’s assessment of the most serious management and performance challenges facing the NRC.

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Although it is difficult to define regulatory independence, the regulatory framework within which the NRC functions has been structured to insulate the Commission from outside influence in its decision making on issues affecting public health, safety, security and the environment. Key features of this framework are the following:

*Separation of functions:* As an organization, NRC not only has no responsibility for promoting or developing nuclear energy, but - importantly - is completely separate from any other government bodies having such responsibilities.

*Political influence:* As already noted, no more than three of the five commissioners can come from a single political party. In a country with two dominant political parties, this helps protect against partisanship, no matter how much control one party may have on other organs.
of government. Commissioners also serve relatively long (5 years) fixed terms, and may also only be removed for "cause" (i.e., not because they have lost favor with the current political leadership.

Conflicts of interest: The Commission implements very strict that prohibit the commissioners or any of the NRC staff from having a financial or personal interest in entities or subject that may be subject to their regulatory decisions. Transparency is important in this regard. NRC employment regulations require annual financial disclosure reports to ensure that improper relationships are identified and eliminated.

Reporting: An important guarantee of independence is NRC’s ability to provide extensive safety-related information to the public, media, other governmental bodies, without review or clearance from any other government agency.

the NRC adopted a streamlined, combined CP/OL licensing process that is set forth in Part 52 of the CFR. Under this approach, an applicant with a pre-approved site and approved design can obtain a single license permitting him to operate the plant. Part 52 details the requirements for site and design approvals.

Even under the new Part 52, the reactor licensing process is lengthy and complex. The following summary identifies the major steps in the NRC process:

- The applicant must submit a safety analysis report (SAR) covering essential factors including: design criteria and information; comprehensive site data; safety features to prevent and mitigate hypothetical accidents; an environmental report on potential impacts; and economic information for purposes of an antitrust review (analyzing possible competitive economic effects).
- The application must also be reviewed by the Commission’s independent Advisory Commission on Reactor Safeguards (ACRS).
- The NRC staff prepares an environmental statement that is issued for public comment.
- A public hearing on the application is required before one of NRC’s atomic safety and licensing boards (ASLB). An ASLB is comprised with 3 members, two of which have technical backgrounds and one who is lawyer. Typically, an ASLB is chaired by the lawyer, who is expected to deal with legal and procedural issues.
- During this process, the Commission may issue a limited work authorization (LWA) to permit certain site preparation and initial construction activities on a "reasonable assurance" that the plant will meet safety and environmental requirements.
- After the public process has been completed a final safety analysis report (FSAR) is prepared, setting forth details justifying the issuance of the license.
- Under the Part 52 process, the Commission may issue an early site permit (valid for 10-20 years) and a standard plant design certification (valid for 15 years). A number of sites in the USA have received early site approval. Also, several standardized plant designs have been certified. A hearing is mandatory under
Part 52, after completion of the ACRS and NRC staff reviews. An important benefit of the combined Part 52 license is that issues resolved in early site permit or design certification proceedings cannot be considered at the combined license stage.

4. Critically examine the attitude of humans today towards the other three orders of nature. Try to make a proper evaluation of human efforts.

**Ans.** In the nature, all the units are connected to each other and fulfilling each other. Human being is related to all other human beings. On this basis, we have feelings and emotions for everyone. Human being is connected to all the material units in the existence and gets aware of it as he starts exploring it. We can see this interconnectedness and mutual fulfillment in the following diagram:

**Material Order and Plant/Bio-Order:** The material order provides the nutrients to the plant/bio order in the form of soil, minerals, etc. While the plant/bio order decays and forms more nutrients, thus enriching the soil.

The plant/bio order also decays to substances like oil and coal, which are stored deep within the earth as protection against the heat from the molten core inside the earth as well as the heat from the sun (today, this is the material we are removing and using as fuel). Plants help move the nutrients through the various layers of the soil. The roots of the plants hold the soil together and prevent the soil from erosion. Plants produce oxygen/ carbon dioxide and thus help in the movement of the material order. There is a mutual interdependency and co-existence we can see here.

**Material Order, Plant/Bio- Order and Animal Order:**

The material order provides the basis for movement of all animals, birds and fishes. Water, oxygen and other gases are necessities for both plants and animals. At the same time, the animal order helps enrich the soil with its excreta and these excreta help the plants with nutrients. The plant/bio order provides food for animals, birds and fishes. The animal Order helps in pollination of the flowers of the panic order.

**Material Order, Plant/Bio- Order, Animal Order and Human Order:** We humans also have a natural acceptance to be mutually fulfilling to these three orders. However, we are not able to ensure this mutual fulfillment. We are dependent on the material order for soil and minerals and metals, but only end up polluting the soil and depleting the fossil fuels; we are dependent on plants for our food and holding together the larger ecosystem, but we have destroyed forests and destroyed multiple species of plants and herbs; we are dependent on animals to carry out our production and transportation activities, but have made many species of animals extinct, and are today known for our cruelty towards animals. We can see that there is interconnectedness and mutual fulfillment in all the orders of nature except human order.
5. What is ethical human conduct? Explain in terms of values, policies and character with appropriate examples.

Ans. The right understanding gained through self-exploration also enables us to identify the definitiveness of human conduct which may also be called the ethical human conduct. It is the same for all human beings. So we are also able to understand the universality of ethical human conduct which is in consonance with the universal human values. Unless we have the right understanding, we are not able to identify the definitiveness of ethical human conduct. It can be understood in terms of the following:

1. Values (Mulya):
2. Policy (Niti):
3. Character (Charitra):

1. Values (Mulya): Competence of living in accordance with universal human values or the participation of a unit in the larger order- its natural characteristics or svabhava. The values of a human being can be enumerated as thirty, which are listed below:

A) Values in self (Jivan Mulya):
- Happiness (Sukha): Definitiveness of expectation (selecting/ tasting) based on definitiveness of thought manifests as happiness.
- Peace (Shanti): Definitiveness of thought based on definitiveness of desire manifests as peace.
- Satisfaction (Santosh): Definitiveness of desire based on understanding manifests as satisfaction.
- Bliss (Ananda): Understanding based on realization manifests as bliss.

B) Values in Human - Human Relationship (Sambandh Mulya):
- Visvasa (Trust)
- Sneha (Affection)
- Mamta (Care)
- Vatsalya (Guidance)
- Shraddha (Reverence)
- Gaurava (Glory)
- Prema (Love)

C) Values of a Human Being in its Participation in Universal Human Order (Manav Mulya):
- Perseverance (Dhirata): After understanding the system, patiently participating in it.
- Bravery (Veerta): Helping other in understanding and participating in system.
- Generosity (Udarta): Using our mind, body and wealth in system.
- Kindness (Daya): To give opportunity or thing to a person who have ability
- Beneficence (Kripa): To give ability to a person who have opportunity or thing
- Compassion (Karuna): Providing both ability and thing to a person.

What we need to have is the established value; the expressed value is a natural outcome.

C.Deepika, Assistant Professor
D) 1. **Values of Human Being** in the Interaction with the Rest of the Nature (Vastu Mulya):
Utility Value (Upyo\-gita Mulya): To prepare a physico-chemical object for nourish and protection. Artistic value (Kala Mulya): To ensure the long lasting utility of the object.

2. **Policy (Niti)**: The decision (plan, program, implementation, results, evaluation) about the enrichment, protection and right utilization of the resources (self, body and wealth - mana, tana and dhana). Have three parts:
   A) Economic Value (Artha Niti): enrichment of self, body and wealth
   B) Political Value (Rajya Niti): protection of self, body and wealth
   C) Policy for Universal Human Order (Dharma Niti): right utilization of self, body and wealth

3. **Character (Charitra)**: The definiteness of my desire, thought and selection gives definiteness to my living.
   A) Sva Nari, Sva Purush: Chastity in conjugal relationship
   B) Sva Dhana: Rightful production, acquisition and utilization of wealth
   C) Dayapurna Vyavahar and Dayapurna Karya: Kindness in behaviour (people friendly) and work (eco friendly)

**Objective Question With Answers**

1. Many human values seem good or right due to:
   a. Positive feelings. b. Internal happiness. c. Natural acceptance. d. All the above.

2. Competence in professional ethics refers to:
   a. Ability to utilize power effectively. b. Ability to augment the universal human order.
   c. Ability to make profit. d. Both b and c.

3. An individual people aspiring for the universal human order will be:

4. The purpose of value education is to:
   a. Foster universal core values. b. Make the syllabus easy.
   c. Develop values in individuals. d. Both (a) and (c)

5. Self exploration uses two mechanisms – natural acceptance and:

6. Harmony should be maintained in:
   d. All the above.

7. Sah-astitva means:

8. A harmonious world is created by values at 4 levels. These are:
   c. School, home, office, temple. d. None of the above.

C. Deepika, Assistant Professor
Professional Ethics

9. A country which has transited to the universal human order is likely to have:
   c. More say in the UNO.        d. None of the above.

10. As individual people aspiring for the universal human order will be:

**ANSWERS**

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**Fill In The Blank Questions With Answers**

1. Material units are _________ in nature.
2. Co-existence is when_________ is submerged in ________.
3. The first order of nature is __________.
4. The second order of nature is __________.
5. The third order of nature is __________.
6. The fourth order of nature is __________.
7. Parsparta means ____________.
8. Paraspar purakta means __________.
9. Human beings are dependent on the ________ for soil, minerals and metals.
10. The natural characteristic of material order ________.

**ANSWERS**

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C.Deepika, Assistant Professor
UNIT-V

2 Marks Questions With Answers

Q1. Define Ethical marketing
ANS
   Ethical marketing refers to the process by which companies market their goods and services by focusing not only on how their products benefit customers, but also how they benefit socially responsible or environmental causes.

Q2. Define Bio-ethics?
ANS
   Bioethics is the study of typically controversial ethics brought about by advances in biology and medicine. It is also moral discernment as it relates to medical policy, practice, and research.

Q3. What is mean by business ethics?
ANS
   Business ethics (also known as corporate ethics) is a form of applied ethics or professional ethics, that examines ethical principles and moral or ethical problems that can arise in a business environment. These norms, values, ethical, and unethical practices are what is used to guide business.

Q4. Define ecosystem.
ANS
   An ecosystem is a community made up of living organisms and nonliving components such as air, water and mineral soil. Ecosystems may be studied either as contingent collections of plants and animals, or as structured systems and communities that are governed by general rules.

Q5. What is ethical human conduct?
ANS
   The right understanding gained through self-exploration enables us to identify the definitiveness of human conduct which may also be called the ethical human conduct. It is the same for all human beings. So we are also able to understand the universality of ethical human conduct which is in consonance with the universal human values. Unless we have the right understanding, we are not able to identify the definitiveness of ethical human conduct.
Professional Ethics

3 Marks Questions With Answers

Q1. What was the problem in the Chernobyl reactor?
ANS
The problem was that,
- The output was maintained to satisfy an unexpected demand.
- The control device was not properly reprogrammed to maintain power at the required level.
- Instead of leaving fifteen control rods as required, the operators raised almost all control rods because at the low power level, the fuel had become poisoned.

Q2. What do you mean by professional ethics?
ANS
Professional ethics means to develop professional competence with ethical human conduct. Ethical human conduct means definitiveness of human conduct. Ethical human conduct is the foundation of professional ethics. The only effective way to ensure professional ethics is through correct appraisal and systematic development of ethical competence in the professional (the human being). Profession is a significant domain of human activity targeted towards participating in the larger order which includes the society and nature around. Thus, it is a meaningful participation for each one in one or more of the five domains of human endeavor needed for a harmonious society. Ethical conduct of profession implies the right utilization of one's professional skills towards the fulfillment of comprehensive human goal and thus, meaningfully participates in the larger order. Professional ethics may be defined as a form of applied ethics that examines ethical principles and moral or ethical problems that arise in a business environment. Professional ethics concerns the moral issues that arise because of the specialist knowledge that professionals attain, and how the use of this knowledge should be governed when providing a service to the public.

Q3. What are the ill effects of acid rain?
ANS
Bacteria’s that are essential for life systems to be active are killed. High acidity results in reduced growth and killing of fishes. Vanishing of greenery and destruction of forests. Germination of seeds is affected affecting the growth of trees.

Q4. What is meant by Disaster? Give an example.
ANS
A disaster does not take place until a seriously disruptive event coincides with a state of insufficient preparation. Example: The Titanic collision with an iceberg constituted an emergency, which turned into a disaster because there were too few lifeboats.

C.Deepika, Assistant Professor
Q5. What are the different ways to create an ethical climate?

ANS
The following are the ways to create an ethical climate:
- Ethical values must be accepted and appreciated by the managers and employees with its full complicated features.
- The sincere use of ethical language has to be recognized as a justifiable part of the company.
- The management has to create a strong confidence among the employees that the management is more serious about ethics by establishing moral tone in words, in policies and also by personal example.
- The management has to establish some procedures for resolving conflicts.

5 Marks Questions With Answers

Q1. What are the ethical issues or questions that arise in environmental protection and Quote some examples of pollution that spoiled the environment?

ANS
Often the questions that arise in the ethical issues are,
Who is affecting?
Who are affected?
Does the environment gets disturbed?
When do the disturbances takes place and how does it happen?

Some examples of pollution that affected the environment are Bhopal gas tragedy, Chernobyl nuclear plant explosion, Artificial rains, Meuse valley disaster at Belgium, Oleum gas leak in Delhi, HPCL disaster in Vizag, Donova (USA)steel and chemical plant disaster, Tehri Dam in U. P. state, etc.

Q2. Give a critical review of the current management models in profession.

ANS
Learning from the Systems in Nature and Traditional Practices: If we really wish to gain an insight into the holistic systems, we have a lot to learn from systems of nature and from traditional practices. With modern developments in science and technology, and their widespread application, an impression has grown that the nature is primarily for exploitation as per the whims and fancies of human beings, the nature has to be tamed/controlled and exploited for human enjoyment. Further, it is believed that the systems in nature are all primitive and have to be replaced by man-made systems. This is how one looks at 'development'. Similarly, it is also believed that the traditional practices are all obsolete and have to be rejected outright. This arrogant attitude towards nature and the traditional know-how has caused much damage to humanity in recent times. It is high time we critically examine these beliefs and rectify them in the light of right understanding.

In reality, nature is not only our nourisher but also a learning ground. The human beings are an integral part of this self-sustaining nature and it is essential to understand its functioning and systems to live in harmony with it. After all, it is only by diligent study of nature that all the laws and principles governing various processes have been discovered by human beings. In a similar way, the systems and cycles of nature also need to be understood and emulated as required in man-made designs. Then only, we can correctly visualize and evolve the holistic way of living.
Professional Ethics

As for the traditional practices, it is true that with increase in knowledge and skills, and with changing needs, it is necessary to make improvisations in technologies and systems of human use, however, in order to do that it is essential to critically evaluate their strengths and weaknesses. It is important to identify the characteristics which have enabled the traditional practices to serve humanity for long periods. The eco-friendly and people-friendly characteristics of many traditional practices are very much worthy of our recognition and retention. Then we will be in a better position to utilize our present day knowledge to augment the systems and make them more effective, efficient and more suited to current needs. For example, we can learn a lot from the traditional practices of eco-friendly agriculture techniques, watershed management, eco-restoration, herbal formulations, preservation techniques, and artisanal practices and so on. It does not amount to going backwards but rather enables us to avail from the vast storehouse of wisdom and experience so that we become better prepared to take the leap forward in the right direction.

Q3. Comment on Profession – in the light of comprehensive human goal

ANS

Any profession is a channel for participation by human beings in the larger order in pursuance of comprehensive human goal. In the process, one is able to contribute towards the livelihood of one’s family and also participate in the larger order constituting the society and the nature around.

All these activities do require a certain degree of skill and are expected to be performed in consonance with the comprehensive human goal. Then only, these will be conducive to the sustained welfare of the individual as well as the society. The excellence or the success of any professional activity is to be judged from this comprehensive point of view only and not in terms of just wealth generation.

Accordingly, the profession is not only a means of earning one’s livelihood but a means of one’s evolution by appropriate participation in the larger order. It is an important activity to authenticate one’s understanding, whereby interact with other human beings and with rest of nature in a mutually fulfilling manner. Thus, profession is a ‘service’.

Q4. What do you mean by professional ethics?

ANS

Professional ethics means to develop professional competence with ethical human conduct. Ethical human conduct means definitiveness of human conduct. Ethical human conduct is the foundation of professional ethics. The only effective way to ensure professional ethics is through correct appraisal and systematic development of ethical competence in the professional (the human being). Profession is a significant domain of human activity targeted towards participating in the larger order which includes the society and nature around. Thus, it is a meaningful participation for each one in one or more of the five domains of human endeavor needed for a harmonious society. Ethical conduct of profession implies the right utilization of one’s professional skills towards the fulfillment of comprehensive human goal.

C.Deepika, Assistant Professor
Professional Ethics

and thus, meaningfully participates in the larger order. Professional ethics may be defined as a form of applied ethics that examines ethical principles and moral or ethical problems that arise in a business environment. Professional ethics concerns the moral issues that arise because of the specialist knowledge that professionals attain, and how the use of this knowledge should be governed when providing a service to the public.

Q5. How do the current world views lead to contradictions and dilemmas in professional life? - Explain.

ANS

Contradictions and Dilemmas: We can understand more clearly through examples how the contradictions and dilemmas are inherently generated by the prevailing worldview in which wealth maximization is perceived to be the prime objective. In such a paradigm, 'your loss is my gain'. Thus the other person's happiness seems to be in conflict with my happiness. In that case, the other people have to be exploited for one to gain affluence and there is no possibility of mutual fulfilment in a sustainable way. In the same way, exploitation of nature also becomes acceptable as it helps a person to accumulate wealth easily and there is no limit to this.

Let us analyse how such a world view affects the propensity of people in different professions. Take the example of business circles, whenever there is a scarcity of commodity due to say - monsoon failure or other natural disturbances or wars etc, the people in general are in distress and need succour; however in such a situation the businessmen endowed with materialistic world view will feel elated and look at it as an opportunity to make maximum profit. They feel that the market is 'improving' and they should take the maximum advantage of it, even accentuate it by hoarding and black marketing to serve their objective. Thus the interest of such businessmen and the consumers in general come in direct conflict. While in reality they are expected to be mutually complementary. In a similar way, ethical practices like adulteration and spurious production etc. are also adopted in an attempt to increase profits- albeit at the cost of greatly endangering public health and safety. An interesting example of the prevailing dichotomy is evident in the advertisements that we daily come across, particularly in case of various evidently harmful products like cigarettes, pan masala etc. Where on one hand, the use of these products is highly glamorized to attract the consumers and in the end there is an inconspicuous statutory warning indicating that the use of these products is injurious to health. Thus there is clear tendency of making profits by promoting the sale of the products which are injurious to public health. In such a situation the dilemma as to how much importance is to be given to one's profit and how much to the welfare always remains unresolved.

Q6. How do the current world views lead to contradictions and dilemmas in professional life? – Explain.

ANS

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Objective Question With Answers

1. Population pyramids are useful to:
   (a) Express the population growth rates
   (b) Express the age-sex distribution
   (c) Indicate the birth rates
   (d) Indicate the death rates

2. The zero population growth due to equal birth and death rates is called:
   (a) Natural increase
   (b) Demographic transition
   (c) Fertility rate
   (d) Replacement level.

3. Global atmospheric temperatures are likely to be increased due to:
   (a) Burning of fossil fuel
   (b) Water pollution
   (c) Soil erosion
   (d) None of the above.

4. Global Warming could affect:
   (a) Climate
   (b) Food production
   (c) Melting of glaciers
   (d) All of the above
5. Greenhouse effect is related to:
   (a) Green trees on house
   (b) Global warming
   (c) Grasslands
   (d) Greenry in country

6. The primary cause of acid rain around the world is:
   (a) Carbon dioxide
   (b) Sulphur dioxide
   (c) Carbon monoxide
   (d) Ozone

7. Ozone layer is present in:
   (a) Troposphere
   (b) Mesosphere
   (c) Stratosphere
   (d) Thermosphere.

8. The ultraviolet radiations in the stratosphere are absorbed by:
   (a) Oxygen
   (b) Ozone
   (c) Sulphur dioxide
   (d) Argon.

9. This may be use as refrigerator:
   (a) CFC
   (b) Carbon
   (c) Acids
   (d) Ozone

10. Chlorofluorocarbon releases a chemical harmful to ozone is:
    (a) Chlorine
    (b) Fluorine
    (c) Sulphur dioxide
    (d) Nitrogen peroxide

**ANSWERS**

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Fill In The Blanks Question With Answers

1. Peeling of Ozone umbrella, which protects us from UV rays, is caused by ______
2. The ozone hole appears in Antarctica during ______
3. Ozone layer thickness is measured in ______
4. Ozone layer is present in ______
5. The average life expectancy around the world is currently ______.
6. Short-term properties of the atmosphere at a given place and time is referred as __
7. Global atmospheric temperatures are likely to be increased due to ______.
8. Gases contributes maximum to the ‘Greenhouse effect on earth ______
9. The primary cause of acid rain around the world is ______________
10. Acid rain is caused by increase in the atmospheric concentration of ____

ANSWERS

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17) Beyond syllabus Topics with material

Topic-1
Global Issues

As the world’s only truly universal global organization, the United Nations has become the foremost forum to address issues that transcend national boundaries and cannot be resolved by any one country acting alone.

To its initial goals of safeguarding peace, protecting human rights, establishing the framework for international justice and promoting economic and social progress, in the seven decades since its creation the United Nations has added on new challenges, such as climate change, refugees and AIDS.

While conflict resolution and peacekeeping continue to be among its most visible efforts, the UN, along with its specialized agencies, is also engaged in a wide array of activities to improve people’s lives around the world — from disaster relief, through education and advancement of women, to peaceful uses of atomic energy.

Africa
The UN system plays a crucial role in coordinating assistance of all kinds — to help Africa help itself. From promoting the development of democratic institutions, to the establishment of peace between warring nations, the UN is present on the ground supporting economic and social development and the promotion and protection of human rights.
Ageing
The world’s population is ageing: virtually every country in the world is experiencing growth in the number and proportion of older persons in their population. The number of older persons, those aged 60 years or over, has increased substantially in recent years in most countries and regions, and that growth is projected to accelerate in the coming decades.

AIDS
New HIV infections have fallen by 35% since 2000 (by 58% among children) and AIDS-related deaths have fallen by 42% since the peak in 2004. The global response to HIV has averted 30 million new HIV infections and nearly 8 million AIDS-related deaths since 2000. The UN family has been in the vanguard of this progress.
Atomic Energy
More than 30 countries worldwide are operating 444 nuclear reactors for electricity generation and 66 new nuclear plants are under construction. In 2014, 13 countries relied on nuclear energy to supply at least one-quarter of their total electricity.

Big Data for the SDGs
The volume of data in the world is increasing exponentially. New sources of data, new technologies, and new analytical approaches, if applied responsibly, can allow to better monitor progress toward achievement of the SDGs in a way that is both inclusive and fair.
Children
Every child has the right to health, education and protection, and every society has a stake in expanding children’s opportunities in life. Yet, around the world, millions of children are denied a fair chance for no reason other than the country, gender or circumstances into which they are born.

Climate Change
Climate change is one of the major challenges of our time. From shifting weather patterns that threaten food production, to rising sea levels that increase the risk of catastrophic flooding, the impacts of climate change are global in scope and unprecedented in scale.
Decolonization
The wave of decolonization, which changed the face of the planet, was born with the UN and represents the world body’s first great success. As a result of decolonization many countries became independent and joined the UN.

Democracy
Democracy is a universally recognized ideal and is one of the core values and principles of the United Nations. Democracy provides an environment for the protection and effective realization of human rights.
**Food**
About 795 million people in the world were undernourished in 2014–16. That means one in nine people do not get enough food to be healthy and lead an active life. Hunger and malnutrition are in fact the number one risk to health worldwide — greater than AIDS, malaria and tuberculosis combined.

**Health**
The United Nations, since its inception, has been actively involved in promoting and protecting good health worldwide. Leading that effort within the UN system is the World Health Organization (WHO), whose constitution came into force on 7 April 1948.
Human Rights
Promoting respect for human rights is a core purpose of the United Nations and defines its identity as an organization for people around the world. Member States have mandated the Secretary-General and the UN System to help them achieve the standards set out in the UN Charter and the Universal Declaration of Human Rights.

International Law and Justice
The UN continues to promote justice and international law across its three pillars of work: international peace and security, economic and social progress and development, and respect for human rights and fundamental freedoms.
**Oceans and the Law of the Sea**
Life itself arose from the oceans. The ocean is vast, some 72 per cent of the earth's surface. Not only has the oceans always been a prime source of nourishment for the life it helped generate, but from earliest recorded history it has served for trade and commerce, adventure and discovery.

**Peace and Security**
Saving succeeding generations from the scourge of war was the main motivation for creating the United Nations, whose founders lived through the devastation of two world wars.
Population
In 1950, five years after the founding of the United Nations, world population was estimated at around 2.6 billion people. It reached 5 billion in 1987 and 6 in 1999. In October 2011, the global population was estimated to be 7 billion.

Refugees
The world is witnessing the highest levels of displacement on record. An unprecedented 59.5 million people around the world have been forced from home. Among them are nearly 20 million refugees, over half of whom are under the age of 18.
Water
Fresh water sustains human life and is vital for human health. There is enough fresh water for everyone on Earth. However, due to bad economics or poor infrastructure, millions of people (most of them children) die from diseases associated with inadequate water supply, sanitation and hygiene.

Women
UN support for the rights of women began with the Organization's founding Charter. Among the purposes of the UN declared in Article 1 is: “To achieve international co-operation in promoting and encouraging respect for human rights and for fundamental freedoms for all without distinction as to race, sex, language, or religion.”

Topic-2: Ethics in Private and Public Relationships
Each individual plays various roles in society. The role played by them defines the relations with others. Every day, we play different roles (father, mother, son, daughter, brother, sister, husband, wife, teacher, student, doctor, leader, businessman, fried, foe, worker, employer, colleagues and so on). Each of these roles carries expected behaviour called “norms”. The roles define relationships such as marriage, family, friendship, kinship in
private sphere of life and teacher-student, doctor-patient, leader-followers, author-reader, employee-employer etc. in public life.

a. **Private Relationships**
Each private and personal relationship has its own irreplaceable value. Each of it has its own unique history, character, and set of implicit and explicit understandings about what is to be expected of the parties to it. The governing factors for ethics in private relationships include individual virtues, universal human values, religion, social norms and law.

b. **Public Relationships**
Public relationships are governed by many aspects. They may or may not be inherited. Many times, they comprise complex situations, contradictory values and conflict of role and interest.

c. **Difference between Private and Public Relationships**
The private relations are obviously more intimate than public relations. They are generally inherited, relatively permanent; accommodate more tolerance for imperfections, and are full with expectations of love and affection. In contrast, public relations may or may not be inherited, are often temporary; with people who are different from us or even strangers, are likely to be instrumental, engaged in due to mutual benefits (quid pro quid), full with expectation of respect, and accountability and are guarded.

d. **Conflict of Role for a Public Servant**
At times, Public servants play conflicting role due to conflict in private life and public life. The private relationships demand individual’s responsibilities towards the role played in private life such as father, mother, husband, etc. These are self-imposed and voluntary and are backed by sanctions of one’s obligations towards self, family and society since ancient times. For example, in our country, the Dharmashstras provide moral codes to regulate the private relations.

However, in public relationships, the public servant needs to cope with several roles altogether. This includes – role in private life, role in personal and family sphere, role as a professional, role for job, role towards his / her area of jurisdiction, role towards seniors and society / humanity at large.

The public service role invokes legal and constitutional obligations, which when violated invite legal sanctions and penalties. Thus, a public servant needs to cope with these different roles which many a times conflict with each other.

The question is – how to survive while playing such conflicting roles? The key to this is “personal integrity”. Personal integrity is simply taking a sincere and ethical stand. It also serves as a building block of public confidence and to establish a trust in society.

e. **Ethical Claims and Managing Ethics in Public Service**
As per Dwight Waldo, there are 12 spheres of ethical claims {means, what they should or ought to do} for a public servant viz. constitution; law; nation; people; democracy;
bureaucratic norms; professionalism; family & friends; personal groups; public interest and welfare and religion. Similarly, the OECD countries publish a set of core values to guide public servants. These core values include impartiality, legality, integrity, transparency, efficiency, equality, responsibility and justice.

This apart, Nolan, in his famous report of Committee of standards of Public life in Britain gave seven basic principles for public servants viz. Selflessness, Integrity, Objectivity, Accountability, Openness; Honesty and Leadership.

Conflicts of Interest
Conflict of Interest refers to a situation in which the concerns or aims of two different individual / parties are incompatible. In other way, it is a situation in which a person is in a position to derive personal benefit from actions or decisions made in their official capacity.

There are two levels of arise of conflict of interest viz. Organisational conflicts of interest; and Personal conflicts of interest. When a person is not able to render impartial service because of relationships or other activities, it is called organizational conflict of interest. When a person is not able to render impartial service because of his / her own private interests, it is called personal conflict of interest. When one is confused between ethical issues in private and public relationships, the personal conflict of interest is bound to arise.

A public servant must also endeavour to avoid conflict of interest by avoiding situations where he / she either benefits personally.

Ideally, the private and public relationships—should be separate. However, practically it is not possible. The public office holders do have private lives, which are driven by whole gamut of emotions and other factors.

**Topic-3 The impact of technology in Quality of life**
Technology has played a prominent role in the development of various industries; it has changed the banking sector, changed education, changed the agricultural industry, changed the entertainment world, it has restructured many businesses. The impacts of technology cannot be measured because it is still changing the way we do everything. However, technology also has some adverse effects. Below I have listed some impacts of technology on our lives both positive and negative.
**Impact Of Technology On Business**

**Positive**

- **Improved Competitive Advantage**

  Businesses have use technology to gain the competitive advantage over their competitors. If a business uses technology to improve its services or products, its customers will be impressed and they will become loyal to that business as well as invite more customers through word of mouth. Advanced technology can result in better customers service and production of high-quality products or services.

- **Improved Communication**

  Business to consumer communication has been improved by use of technology. Now a business can easily communicate to its clients to know how they feel about their services. The information collected is used to improve on the services of the business which results in business growth. For example, businesses can use social Medias to hold product surveys.

- **Improved Human Resource Management**

  A business can use technology to recruit and train new employees. Nowadays there are unlimited Job boards online where companies post jobs and applicants apply through that online Job board. This simplifies all process of hiring and it saves time.
Negative

- **Technology Is Expensive As Well**

Even though we use technology to solve operational costs in business and increase on productivity. To buy the machine which will replace 10 humans to perform a certain tusk is quite expensive. This machine will require continuous maintenance and a standby technician to operate it and fix it in case it breaks down. So technology is expensive as well.

**Impact Of Technology On Education**

Positive

- **Globalization Of Education**

Technology has made education remote. With the help of internet technology, online education has become a strong force in the education sector. Now students can study courses which are provided in other countries without having any boundary limitations.
Professional Ethics

Negative

- **Exposure To Wrong Data**

Though technology has made learning so easy and cheap, students get exposed to data which is not approved and many times they just copy and pastes this information they acquire online without any deep research on whether the data is correct. This has increased the level of misinformation and failure of exams. My advice to students is that ”Not whatever is published online is correct” analyze the data and discuss with friends before submitting that data.

Impact Of Technology On Society

Positive

- **Improved The Transportation Sector**

Technology has made the movement so easy and cheap, technologies like automobiles, airplanes, speedboats, electronic trains, have made moving from one place to another so easily.

- **Improved On Human Relationships And Connection**

Technology has improved on how we connect or discover new relationships. With things like mobile phones and internet social Medias, people can connect with each so easily than before.

Negative

- **The Digital Divide Is On Increase**

C.Deepika, Assistant Professor
As much as we’re embracing technology in most developed countries, there is a big group left behind and they might not even get close to the way we use technology in the first world. For example, the invention of the e-wallet is a good technology which will help you to pay for anything via your iPhone, but as good as this technology may be, many countries in the third world cannot use the service.

- **Lack Or Real Life And Friends**

Yes, social networks and text messaging technologies have played a very big role in connecting people more than before, but what is funny is that the number of people who spend time alone is increasing. You will find a person spends more time in the virtual world chatting with strangers ‘virtual friends’, a user will have over 500 friends on a specific social network, but they have no real friends in the real world, WHY? Because they spend most their time in the virtual world and give up on getting real friends, which results in loneliness and cyber-sickness.

- **Virtual Reality Technology “Sickness”**

Nowadays most airlines use this virtual reality technology to train their pilots on how to react effectively in adverse conditions. So during this training, the pilot will be presented with a challenge in a virtual reality form and they will be guided on how to overcome that task. For example, many pilots are faced with bad weather and defective engines. The pilot will be presented with the same challenge in a virtual reality world and they train how to overcome the challenge.

**Now Here Is The Problem:**

The pilot in question has been exposed to a virtual life and if they do this for so long, it creates an imbalance in their life. They find a problem of living the other virtual life to a real one. So they keep getting flashbacks, eyestrain and simulator sickness. If you spend a lot of time in a virtual reality system that uses a low-resolution headset for displaying views, you may experience eyestrain issues. When the resolution is too low, your eyes are forced to work harder to distinguish images.
Then also some people will have flashbacks of what they experience in the virtual reality world. In most cases, the brain must fight to separate the other life from the real life. During this processing of differentiating what is fake from what is real, you will potentially experience “déjà vu” or a temporary dissociation with reality.