FIRST TERM EXAMINATION [FEB. 2017]
EIGHTH SEMESTER [B.TECH]
HUMAN VALUES AND PROFESSIONAL ETHICS–II [ETHS–402]

Time : 1.5 hrs. **M.M. : 30**

Note: Q. No. 1 is compulsory. Attempt any two questions from the rest.

Q.1. Discuss how human values and ethics play an important role in our professional career? **(10)**

Ans. Workplace ethics play a vital role in both career development and professional growth. They build a positive reputation for companies, which is integral to business success. Employers seek candidates with integrity to ensure increased productivity which means ethical workers are rewarded with advancement opportunities, having top qualifications without strong ethics compromises career development opportunities. Successful employees have a strong educational background and personal ethics. These qualities are drawn from life experiences and personal values. However, professional ethics are a product of education and can be fortified with exposure to great organizational culture.

A strong workplace culture focuses on key values, such as integrity and openness. Successful businesses promote a strong alignment between ethical practices and overall company values. Many organisations require employees to follow a code of ethics when handling daily duties. Adhering to the code makes it easy to provide a high quality and reliable service. A company that does not value integrity can easily face legal woes because of the behaviour of its leaders and workforce. That is a major reason why 79% of employees believe that ethics are important in continuing to work for their employers. Our values and ethics guide the decisions we make. Making decisions against them can lead to regrets that haunt us later and hurt our career. Similarly, employers and co-workers can help or hinder our career through the values and ethics they demonstrate on the job. Staying true to our personal values brings many benefits to our reputation and career.

Values Guide us: Values guide our sense of what's important. Some values are likely more important to we than others, and where they rank in our psyche impacts our career choices. For example, valuing security more than achievement would make wuse more risk-averse. We'd likely be more comfortable keeping the job we have rather than dropping everything for a risky new opportunity. Conversely, by valuing achievement more than security, we might feel fine risking what we have now for the uncertain chance of something more. Using our values to guide us, we can decide quickly what actions and opportunities to take or leave.

Ethics Ground us: Ethics ground our behavior in a sense of right and wrong. Personal ethics come from our upbringing, experiences and relationships throughout our life. Professional ethics might stem from our education, or be codified by the organization or profession that we're in. For example, according to the International Coach Federation, many life coaches follow an industry code of ethics that includes being truthful when advertising and maintaining client confidentiality. Adhering to ethical standards keeps us out of trouble with customers, employers, colleagues and

the law. Being ethical strengthens people's trust in us, which can attract support for our ideas, cooperation at work and leadership opportunities.

Integrity: Staying true to our values and ethics builds integrity. Compromising our beliefs for a job can diminish our self-respect and make us resent our job, the people we work with and our self. Many times the pressure is on to sacrifice values and ethics for the good of the company, the will of the boss, or the reward of more money. Having integrity can serve us more in the long run by strengthening our relationships and reputation as we make career progress.

When Forces Clash: Being too flexible when our values and ethics clash with our workplace culture has lasting impact on our health, self-respect and how we want our family or community to remember we should never be compromised. Some situations, though, might challenge our resolve. For example, we might value honesty but end up pressured to cover up for a co-worker or bend the truth about a product to close a deal. Occasional compromises might be necessary but know the lines we won't cross. Colleagues may hold themselves to higher standards if we express concern over unethical behavior. As a manager, thinking long-term for the greater good and creating results through integrity can impact employees' career success along with ours.

When Integrity Backfires: Upholding our values and ethics could cause rivalry. Forty-five percent of employees responding to the 2011 National Business Ethics Survey by the Ethics Resource Center witnessed unethical behavior in the workplace and 20 percent of whistleblowers suffered some form of retaliation. The pressure to compromise ethics is also rising in more workplaces, according to the survey. Under unethical management, maintaining our integrity may require changing jobs or career paths.

Q.2. How does implementation of technology by Engineers, influences the human values of society? **(10)**

Ans. A decade ago, James Ferguson, an engineer turned historian, drew up a list of what he called "imperatives of engineering". The list is neither complete nor fundamental. It will nevertheless help us understand engineering. Engineers, Ferguson claimed, (1) strive for efficiency, (2) design labor-saving systems, (3) design control into the system, (4) favor the very large, the very powerful, or (in electronics) the very small, and (5) tend to treat engineering as an end in itself rather than as a means to satisfying human need. These "imperatives" are, according to Ferguson, instincts engineers bring to their work. While an engineer can resist them, just as I can resist drinking water even if I am thirsty, they are, in effect, the engineer's default setting, what engineers will do unless they consciously try to do something else.

Ferguson intended this list to be a criticism of the way engineers work. It is, I think, both less and more than that. The list is less than a criticism because at least the first four imperatives seem, on reflection, at least as much virtues as vices. The list is also more than a criticism because it highlights certain enduring features of engineering, permitting us to connect engineering's history with today's practice. Let's take a closer look at Ferguson's list. "Efficiency" is the first imperative Ferguson identifies. Ferguson points out, rightly, that "efficiency" is a slippery term, meaning "most powerful" here, "lowest cost" there, and something else elsewhere. What he overlooks is the concept utility. Engineers always define "efficiency" so that they can measure it (or its components), assign numbers, and thereafter seek to control it. That is not surprising.

Like other professions, engineering tends to analyze a situation so that its distinctive skills can be applied.

One distinctive skill of engineers is giving mathematical structure to practical problems. The concept of efficiency allows them to exercise that skill. Engineers have, no doubt, often paid too much attention to efficiency, especially forms of efficiency that turned out not to matter. Indeed, the history of engineering is in part the history of measurable properties used for a time as proxy for something that could not be measured and then discarded when the proxy proved not to have enough of a relation to what the engineers actually cared about.

Because engineering is a practical undertaking, it must learn from practice. It cannot learn from practice without making mistakes. Some of engineering's mistakes have concerned efficiency. Engineers can, of course, be unduly slow about giving up one of these proxy measures. But, even this slowness is understandable. Engineers are used to working in large organizations, organization where change is difficult and the consequences are often hard to predict. They therefore have a tendency to cling to practices they would no longer adopt. The world is a tough laboratory. Many things better in theory are worse in practice. How daring do we want engineers to be with our lives?

The second imperative on Ferguson's list is a preference for labor-saving devices. Engineers will, Ferguson thinks, design to save labor even when labor is cheap and the end result will be higher production costs and more unemployment. The engineer's preference for labor-saving is understandable as a product of engineering's military origin. Since engineering began, the primary labor pool of most armies has been their own soldiers. Since no general wants his soldiers doing construction when they could be fighting, military engineers have always had an incentive to look for means of saving labor even though the labor saved was, in one sense, cheap (indeed, free).

As military engineering became civil engineering, this tendency might have put engineers at a disadvantage. Their designs might have proved too costly. Those who hired engineers would, however, soon have learned this. They would then have compensated, either by being careful about when they called an engineer in or by making sure that the engineer defined the desired outcome taking cost into account. If, as Ferguson's criticism suggests, such compensation seldom occurs, the most likely reason is that the engineer's preference for labor-saving devices generally serves those who employ engineers. The reason that preference might serve their employers is not hard to see. Labor has a tendency to become scarce, and so costly, where it is not routinely saved. Of course, that is only a tendency. Many of those thrown out of work by a particular innovation live out their lives on the dole. Many engineers would, no doubt, like to take such effects into account; and perhaps many of their employers would let them.

But, if engineers are to take such considerations into account, they will need both the relevant information and a routine for using it. Gathering such information belongs to the social sciences, not to engineering as it is or as it is likely to become. Any curriculum that could give engineers the skills to develop significant social statistics would probably be too long to attract many students. Engineers should not be blamed for failing to take into account social consequences about which they can only guess. Where, however, such information exists, developing ways to incorporate it into engineering work is certainly something engineers can, and should, do. Indeed, they have long done this with the

employer's share of the cost of production. And, over the last two decades, thanks to the Environmental Protection Agency (EPA), engineers have become adept at incorporating environmental costs into their designs. They could do the same for social impact if they had numerical standards for assessing impact and sources of information from which the relevant numbers could be taken. Engineers can help to develop such standards, just as they helped to write EPA standards. But, just as with environmental standards, standards for permissible social impact are probably not what most people would want engineers alone to decide—or even engineers with the help of lawyers, accountants, corporate executives, and other specialists. Social impact raises political issues, that is, issues everyone wants a part in deciding. If engineers decline to develop such standards unilaterally, should we blame them? Ferguson's third imperative is designing controls into the system. Engineers generally try to separate planning and execution. Intelligence is designed into the system, requiring as little intelligence as possible of the system's operators. The assembly line is the typical example of this imperative. Engineers have generally tried to design an assembly line so that the work is so simple that only a few minutes training is necessary to learn the job. The job is therefore likely to be repetitive and boring. Engineering's military past certainly explains the origin of this imperative. Soldiers sent over to help on an engineering project, whether digging trenches or putting a bridge over a river, will not have much time to learn the job.

The military engineer must design the work so that anybody can do it. But its military past alone does not explain why this imperative persists in civilian engineering (or, at least, why engineers who do such things should be so much in demand). The explanation of that, like the persistence of engineering's second imperative, must be that this tendency has proved useful in civilian engineering as well. One recent example will suggest why that might be. McDonald's restaurants now have cash-register buttons with pictures of the various items on the menu. The cashier need not know the price of anything, or even be able to read, only be able to recognize the pictures and push buttons accordingly.

In a business where employee turnover is high and education low, where prices frequently and training is expensive, this dumbing-down of the job both saves money for McDonald and opens employment to many who might not otherwise be qualified. Whoever thought of that device, engineer or not, was undoubtedly a hero to McDonald's. The fourth imperative of engineering Ferguson lists is a tendency to disregard human scale, preferring the very large or the very small. The reason for this imperative is that engineering was, and remains, a creature of large organizations. Louis XIV's army, one of the largest organizations of its day, created engineering to do what civilian artisans could not do. Even today, most engineers work in large organizations. You do not need an engineer to construct a single family house. A carpenter or architect will do, as they always have. If, however, you want to construct a thirty-story building, you will need engineers. The problem, I think, is not so much that engineers disregard human scale as that they are seldom needed for things on a human scale.

Generally, asking engineers to work on a human scale is like asking lawyers to prepare a partnership agreement for two children opening a lemonade stand. They can do it, but either they will do what anyone else could do or they will do something out of all proportion to the job. In this respect, the very small can be like the very large. For example, to make today's tiny electronic circuits requires productive forces of which single human being is incapable. Hence, there is work for engineers. Ferguson's

imperative, putting technical brilliance ahead of human need, is unlike the others. It is a failing common to all professions.—We all know the joke about the surgeon who says, "Though the patient died, the operation was a success."—But this last "imperative of engineering" is worse than a failing common to all professions; it is a failing inconsistent with one of engineering's fundamental values. I have stressed the military origins of engineering. I have not pointed out that most of the period we have been talking about, roughly the 1700s, is known as the Age of Enlightenment. This was the time many Europeans first came to believe that enlightenment that is, scientific education, would bring peace, prosperity, and continuous improvement.

For countless ages, the best hope of the wise was that the world would not get much worse. With the Age of Enlightenment, people began to act on the belief that the world could be made much better. Engineering has this belief built into it. For example, early graduates of the École Polytechnique were noted for "scientific and democratic idealism and a desire to work for human progress". The same attitude was evident in England at about the same time. When, in 1828, the British Institution of Civil Engineers, then nine years old, asked one of its members, Thomas Tredgold, to define the term "civil engineering", he gave an answer engineers still quote: "Civil Engineering is the art of directing the great sources of power in Nature for the use and convenience of man...The most important object of Civil Engineering is to improve the means of production and of traffic in states, both for external and internal trade." For Tredgold, engineering was committed to making things "for the use and convenience of man".

But, for Tredgold, this was not simply a matter of maintaining things as they were. Engineering was supposed to "improve means of production and traffic". Engineering was, by definition, an instrument of material progress. But what about engineering today? Most engineers would, no doubt, want to tinker with Tredgold's definition, for example, by substituting "people" for "man". But few, if any, would want to tamper with its core. Engineering remains an undertaking committed to human progress. So, for example, the most widely adopted of America's codes of engineering ethics, begins: "[Engineers uphold and advance the integrity, honor, and dignity of the engineering profession by] using their knowledge and skill for the enhancement of human welfare.

Q.3. Describe the Bhopal Gas tragedy and its after effects. Discuss how the victims were treated and helped by the administration. **(10)**

Ans. On December 3, 1984, Union Carbide's pesticide-manufacturing plant in Bhopal, India leaked 40 tons of the deadly gas, methyl isocyanate into a sleeping, impoverished community - killing 2,500 within a few days, 10000 permanently disabled and injuring 100,000 people. Ten years later, it increased to 4000 to 7000 deaths and injuries to 600,000.

Risks taken: Storage tank of Methyl Isocyanate gas was filled to more than 75% capacity as against Union Carbide's spec. that it should never be more than 60% full. The company's West Virginia plant was controlling the safety systems and detected leakages thro computers but the Bhopal plant only used manual labour for control and leak detection. The Methyl Isocyanate gas, being highly concentrated, burns parts of body with which it comes into contact, even blinding eyes and destroying lungs.

Causal Factors: Three protective systems out of service Plant was understaffed due to costs. Very high inventory of MIC, an extremely toxic material.The accident

occurred in the early morning.Most of the people killed lived in a shanty (poorly built) town located very close to the plant fence.

Workers made the following attempts to save the plant: They tried to turn on the plant refrigeration system to cool down the environment and slow the reaction. (The refrigeration system had been drained of coolant weeks before and never refilled—it cost too much.) They tried to route expanding gases to a neighboring tank. (The tank's pressure gauge was broken and indicated the tank was full when it was really empty.) They tried to purge the gases through a scrubber. (The scrubber was designed for flow rates, temperatures and pressures that were a fraction of what was by this time escaping from the tank. The scrubber was as a result ineffective.) They tried to route the gases through a flare tower — to burn them away. (The supply line to the flare tower was broken and hadn't been replaced.) They tried to spray water on the gases and have them settle to the ground, by this time the chemical reaction was nearly completed. (The gases were escaping at a point 120 feet above ground; the hoses were designed to shoot water up to 100 feet into the air.) In just 2 hours the chemicals escaped to form a deadly cloud over hundreds of thousands of people incl. poor migrant labourers who stayed close to the plant.

The Bhopal gas leak caused extensive damage to the environment surrounding the Union Carbide factory. The impacts were both immediate and long-term. Due to improper clean up in the area, Bhopal residents are still affected by the negative consequences of the gas leak.

Immediate Effects: In the days following the gas leak, the leaves on the trees near the factory yellowed and fell off the branches. Around 2,000 animals, mostly livestock such as goats and buffalo, were killed by the gas leak. The Indian government prohibited fishing in the area for fear that the rivers and lakes were polluted. The food supply in Bhopal became scarce due to suppliers' fears of food safety. Nearby crop growth was also affected by the leak. According to authorities, 36 wards in the region were considered to be "gas affected." These 36 wards contained a population of some 520,000 people.

Long-Term Effects: Since the Bhopal gas leak, there have been persistent environmental problems due to improper clean up. Past attempts to decontaminate the environment in and around Bhopal were incomplete. The clean up responsibilities shifted from Union Carbide Industries to the Madhya Pradesh government in 1998. Since this time, money and accountability for the leak have become a problem. As a result, drinking water contamination has become a major issue.

Water Contamination: Bhopal's underground water supply is polluted with toxic chemicals such as heavy metals and persistent organic pollutants. The contamination is not only due to the Bhopal gas leak, but also to Union Carbide's practices prior to the leak. The improper treatment of chemicals has contributed to the water pollution. As a result of the contamination, the water in Bhopal is unsafe for drinking. Greenpeace Research Laboratories conducted water sample testing in 1999 and determined the levels of contaminants in Bhopal's water supply.

Soil Contamination: In addition to water testing, Greenpeace Research Laboratories also performed soil testing to check for contamination. They tested several sites near the Union Carbide plant. Greenpeace found the metal levels in the soil

similar to uncontaminated soil. The only metal with high concentrations was copper, which can naturally vary in nature and was unlikely due to the gas leak. The researchers concluded that the activities at the Union Carbide plant including the gas leak did not contaminate the surrounding soil.

Lasting Impact: Activist groups have urged Dow Chemicals (the current owner of the Union Carbide plant) to clean up the environment surrounding Bhopal. These groups have urged the local government to request that Dow Chemicals pay for the clean up. Although a legal settlement resulted in the Madhya Pradesh government having jurisdiction over the clean up, activist groups believe Dow Chemicals must still be held accountable. Due to a lack of money and no one taking responsibility, the efforts to clean up the environment came to a halt. The impact of this decision is that until the drinking water is decontaminated, the residents of Bhopal will continue to be exposed to the toxic chemicals.

Government Action to the Bhopal tragedy: In the immediate aftermath, the plant was closed to outsiders (including UCC) by the Indian government, which subsequently failed to make data public, contributing to the confusion. The initial investigation was conducted entirely by the Council of Scientific and Industrial Research (CSIR) and the Central Bureau of Investigation. The UCC chairman and CEO Warren Anderson, together with a technical team, immediately traveled to India. Upon arrival Anderson was placed under house arrest and urged by the Indian government to leave the country within 24 hours. Union Carbide organized a team of international medical experts, as well as supplies and equipment, to work with the local Bhopal medical community, and the UCC technical team began assessing the cause of the gas leak.

The health care system immediately became overloaded. In the severely affected areas, nearly 70 percent were under-qualified doctors. Medical staff were unprepared for the thousands of casualties. Doctors and hospitals were not aware of proper treatment methods for MIC gas inhalation.

There were mass funerals and cremations. Within a few days, trees in the vicinity became barren and bloated animal carcasses had to be disposed of. 170,000 people were treated at hospitals and temporary dispensaries; 2,000 buffalo, goats, and other animals were collected and buried. Supplies, including food, became scarce owing to suppliers' safety fears. Fishing was prohibited causing further supply shortages

Lacking any safe alternative, on 16 December, tanks 611 and 619 were emptied of the remaining MIC by reactivating the plant and continuing the manufacture of pesticide. Despite safety precautions such as having water carrying helicopters continually overflying the plant, this led to a second mass evacuation from Bhopal. The Government of India passed the "Bhopal Gas Leak Disaster Act" that gave the government rights to represent all victims, whether or not in India. Complaints of lack of information or misinformation were widespread. An Indian government spokesman said, "Carbide is more interested in getting information from us than in helping our relief work".

Formal statements were issued that air, water, vegetation and foodstuffs were safe, but warned not to consume fish. The number of children exposed to the gases was at least 200,000.Within weeks, the State Government established a number of hospitals, clinics and mobile units in the gas-affected area to treat the victims.

Q.4. "Safety is not reliability". Justify. **(10)**

Ans. In traditional systems, safety and reliability are normally considered to be independent issues. It is therefore possible to identify a traditional system that is safe and unreliable and systems that are reliable but unsafe. Consider the following two examples. Word-processing software may not be very reliable but is safe. A failure of the software does not usually cause any significant damage or financial loss. It is therefore an example of an unreliable but safe system. On the other hand, a hand gun can be unsafe but is reliable. A hand gun rarely fails. A hand gun is an unsafe system because if it fails for some reason, it can misfire or even explode and cause significant damage. It is an example of an unsafe but reliable system. These two examples show that for traditional systems, safety and reliability are independent concerns - it is therefore possible to increase the safety of a system without affecting its reliability and vice versa.

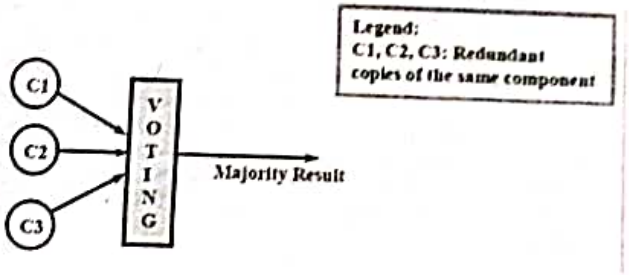
In real-time systems on the other hand, safety and reliability are coupled together. Before analyzing why safety and reliability are no longer independent issues in real-time systems, we need to first understand what exactly is meant by a fail-safe state.

To give an example, the fail-safe state of a word processing program is one where the document being processed has been saved onto the disk. All traditional non real-time systems do have one or more fail-safe states which help separate the issues of safety and reliability - even if a system is known to be unreliable, it can always be made to fail in a fail-safe state, and consequently it would still be considered to be a safe system.

If no damage can result if a system enters a fail-safe state just before it fails, then through careful transit to a fail-safe state upon a failure, it is possible to turn an extremely unreliable and unsafe system into a safe system. In many traditional systems this technique is in fact frequently adopted to turn an unreliable system into a safe system. For example, consider a traffic light controller that controls the flow of traffic at a road intersection. Suppose the traffic light controller fails frequently and is known to be highly unreliable. Though unreliable, it can still be considered safe if whenever a traffic light controller fails, it enters a fail-safe state where all the traffic lights are orange and blinking. This is a fail-safe state, since the motorists on seeing blinking orange traffic light become aware that the traffic light controller is not working and proceed with caution. Of course, a fail-safe state may not be to make all lights green, in which case severe accidents could occur. Similarly, all lights turned red is also not a fail-safe state - it may not cause accidents, but would bring all traffic to a stand still leading to traffic jams. However, in many real-time systems there are no fail-safe states. Therefore, any failure of the system can cause severe damages. Such systems are said to be safety-critical systems.

An example of a safety-critical system is a navigation system on-board an aircraft. An on-board navigation system has no fail-safe states. When the computer on-board an aircraft fails, a fail-safe state may not be one where the engine is switched-off! In a safety-critical system, the absence of fail-safe states implies that safety can only be ensured through increased reliability. Thus, for safety-critical systems the issues of safety and reliability become interrelated - safety can only be ensured through increased reliability. It should now be clear why safety-critical systems need to be highly reliable.

Just to give an example of the level of reliability required of safety-critical systems, consider the following. For any fly-by-wire aircraft, most of its vital parts are controlled by a computer. Any failure of the controlling computer is clearly not acceptable. The standard reliability requirement for such aircrafts is at most 1 failure per 109 flying hours (that is, a million years of continuous flying!). We examine how a highly reliable system can be developed in the next section.



How to Achieve High Reliability?

If you are asked by your organization to develop software which should be highly reliable, how would you proceed to achieve it? Highly reliable software can be developed by adopting all of the following three important techniques:

- **Error Avoidance:** For achieving high reliability, every possibility of occurrence of errors should be minimized during product development as much as possible. This can be achieved by adopting a variety of means: using well-founded software engineering practices, using sound design methodologies, adopting suitable CASE tools, and so on.
- **Error Detection and Removal:** In spite of using the best available error avoidance techniques, many errors still manage to creep into the code. These errors need to be detected and removed. This can be achieved to a large extent by conducting thorough reviews and testing. Once errors are detected, they can be easily fixed.
- **Fault-Tolerance:** No matter how meticulously error avoidance and error detection techniques are used, it is virtually impossible to make a practical software system entirely error-free. Few errors still persist even after carrying out thorough reviews and testing. Errors cause failures. That is, failures are manifestation of the errors latent in the system. Therefore to achieve high reliability, even in situations where errors are present, the system should be able to tolerate the faults and compute the correct results. This is called fault-tolerance. Fault-tolerance can be achieved by carefully incorporating redundancy.

It is relatively simple to design a hardware equipment to be fault-tolerant. The following are two methods that are popularly used to achieve hardware fault-tolerance:

- **Error Detection and Removal:** In spite of using the best available error avoidance techniques, many errors still manage to creep into the code. These errors need to be detected and removed. This can be achieved to a large extent by conducting thorough reviews and testing. Once errors are detected, they can be easily fixed.

• **Built In Self Test (BIST):** In BIST, the system periodically performs self tests of its components. Upon detection of a failure, the system automatically reconfigures itself by switching out the faulty component and switching in one of the redundant good components.

• **Triple Modular Redundancy (TMR):** In TMR, as the name suggests, three redundant copies of all critical components are made to run concurrently. Observe that C1, C2, and C3 are the redundant copies of the same critical component. The system performs voting of the results produced by the redundant components to select the majority result. TMR can help tolerate occurrence of only a single failure at any time. (Can you answer why a TMR scheme can effectively tolerate a single component failure only?). An assumption that is implicit in the TMR technique is that at any time only one of the three redundant components can produce erroneous results. The majority result after voting would be erroneous if two or more components can fail simultaneously (more precisely, before a repair can be carried out).In situations where two or more components are likely to fail (or produce erroneous results), then greater amounts of redundancies would be required to be incorporated. A little thinking can show that at least 2n+1 redundant component are required to tolerate simultaneous failures of n component.

As compared to hardware, software fault-tolerance is much harder to achieve. To investigate the reason behind this, let us first discuss the techniques currently being used to achieve software fault-tolerance.

END TERM EXAMINATION [MAY-JUNE 2017]
EIGHTH SEMESTER [B.TECH]
HUMAN VALUES AND PROFESSIONAL ETHICS–II [ETHS–402]

Time : 3 hrs. **M.M. : 75**

Note: *Attempt any five quesions. All quations carry equal marks.*

Q.1. Write Short Notes on any five of the following:- **(5×5 = 25)**

(a) Collegiality

Ans. Collegiality is the tendency to support and cooperate with the colleagues. It is a virtue essential for the team work to be effective. This consists of various aspects such as:

1. Respect to the ideas and work of others: This results in support and co-operation with one's colleagues. One gets back the support and cooperation in return, and this is manually beneficial.
2. Commitment to moral principles: Commitment is towards moral decisions, actions, goals of the organization and values of the profession.
3. Connectedness: It means the shared commitment and mutual understanding. It ensures the absence of egoism and paves the way for progress for both.

(b) IPR

Ans. Intellectual Property Rights (IPR) are about creations of the mind, they are granted to creators of IP, for ideas which are new and original, by the respective governments. No one can use others' IPR without their permission. These rights come with limited monopoly and exclusivity. There are different types of IPR namely, patents, copyrights, trademarks, industrial designs, protection of geographical indications (GIs), IC lay-out designs, trade secrets and new plant varieties. IP rights are territorial. It means that an Indian registration is valid only in India. For protection of Intellectual Property in any other country, one has to seek protection separately under the relevant law. **Intellectual property** protection is critical to fostering innovation. Without protection of ideas, businesses and individuals would not reap the full benefits of their inventions and would focus less on research and development. Copyrights protect expression and patents protects inventions, and neither protect **ideas**. In both cases the **idea** is the first critical step, but without some identifiable embodiment of the **idea** there can be no **intellectual property** protection obtained and no exclusive rights will flow unto you.

(c) Cultural discrimination

Ans. Racial or cultural discrimination as defined in international law is "*any distinction, exclusion, restriction or preference based on race, colour, descent or national or ethnic origin which has the purpose or effect of nullifying or impairing the recognition, enjoyment or exercise, on an equal footing, of human rights and fundamental freedoms in the political, economic, social, cultural or any other field of public life.*"

Discrimination may be distinguished from **prejudice** which is made up of unfavourable or discriminatory attitudes (not actions) towards persons of different

categories. Racial, sexual and other types of discrimination can exist at the level of personal relations and individual behaviour as well as be institutionalized as legal or administrative policy. The term discrimination refers to modern industrial societies characterized by a generalized ideology of equality of opportunities and rights, but which exclude from them certain categories of persons, sometimes small minorities but often large and important ones or even majorities such as women.

Discrimination is the selection for unfavourable treatment of an individual or individuals on the basis of: gender, race, colour or ethnic or national origin, religion, disability, sexual orientation, social class, age (subject to the usual conventions on retirement), marital status or family responsibilities, or as a result of any conditions or requirements that do not accord with the principles of fairness and natural justice. It can take a variety of forms and may include the following:

- **direct discrimination**, for example, refusing to admit as students, employ or promote individuals because they are black, female, disabled or because of their sexual orientation;
- **indirect discrimination**, for example, setting age qualifications which discriminate against women who have had periods away from work because of family responsibilities.

(d) Conflict of Interest

Ans. A conflict of interest is a situation in which an individual has competing interests or loyalties. A conflict of interest can exist in many different situations. The easiest way to explain the concept of conflict of interest is by using some examples.

- with a public official whose personal interests conflict with his/her professional position.
- with a person who has a position of authority in one organization that conflicts with his or her interests in another organization
- with a person who has conflicting responsibilities.

Like other types of illegal or unethical activities, conflict of interest activities carry the risk of consequences.

In certain circumstances, conflict of interest can result in prosecution. For example, public officials, like state legislators, are specifically prohibited from activities that would result in a personal gain because of conflict of interest.

In most cases, though, conflict of interest matters are handled in court by a civil lawsuit. For example, if a company has proof that a board member profited from his role on the board, the board member has violated her duty of loyalty and can be taken to court.

An employee may work for one company but he or she may have a side business that competes with the employer. In this case, the employee would likely be asked to resign or be fired.

A common workplace conflict of interest involves a manager and his or her employee who are married and have a relationship. This is a conflict because the manager has the power to give raises or promotions to the employee. Discussions about the company between the two people may also breach confidentiality restrictions.

(e) Hacking

Ans. Hacking is an attempt to exploit a computer system or a private network inside a computer. Simply put, it is the unauthorised access to or control over computer network security systems for some illicit purpose.

Description: To better describe hacking, one needs to first understand hackers. One can easily assume them to be intelligent and highly skilled in computers. In fact, breaking a security system requires more intelligence and expertise than actually creating one. There are no hard and fast rules whereby we can categorize hackers into neat compartments. However, in general computer parlance, we call them white hats, black hats and grey hats. White hat professionals hack to check their own security systems to make it more hack-proof. In most cases, they are part of the same organisation. Black hat hackers hack to take control over the system for personal gains. They can destroy, steal or even prevent authorized users from accessing the system. They do this by finding loopholes and weaknesses in the system. Some computer experts call them crackers instead of hackers. Grey hat hackers comprise curious people who have just about enough computer language skills to enable them to hack a system to locate potential loopholes in the network security system. Grey hats differ from black hats in the sense that the former notify the admin of the network system about the weaknesses discovered in the system, whereas the latter is only looking for personal gains. All kinds of hacking are considered illegal barring the work done by white hat hackers.

(f) Whistle Blowing

Ans. Whistle blowing refers to any time that a member of an organization (or a former member) tells someone else about an illegal or immoral practice, if the telling is done in the hope that someone will do something to change the practice. In the great majority of cases, employees tell someone within the organization and don't want to cause any bad publicity for the organization—this is sometimes called internal whistle blowing, though we prefer to call this *internal reporting*.

When organizations punish or discourage internal reporting, bad practices typically get worse, until someone—often motivated by conscience—feels they must notify the press, or a government agency. This is known as external whistle blowing, and it can mean serious problems for the organization.

From an Ethical Systems perspective, internal reporting is vital to the health of organizations. Companies that don't make it easy for their employees to report small problems internally are likely to find themselves facing much larger problems externally. But there's a common problem in organizations: people who speak up, even internally, are sometimes seen as traitors, or as people who are "not team players."

(g) Morality

Ans. Morality speaks of a system of behavior in regards to standards of right or wrong behavior. The word carries the concepts of: (1) moral standards, with regard to behavior; (2) moral responsibility, referring to our conscience; and (3) a moral identity, or one who is capable of right or wrong action. Common synonyms include ethics, principles, virtue, and goodness. Morality has become a complicated issue in the multicultural world we live in today. Let's explore what morality is, how it affects our behavior, our conscience, our society, and our ultimate destiny.

Morality describes the principles that govern our behavior. Without these principles in place, societies cannot survive for long. In today's world, morality is frequently thought of as belonging to a particular religious point of view, but by definition, we see that this is not the case. Everyone adheres to a moral doctrine of some kind.

Morality as it relates to our behavior is important on three levels. Renowned thinker, scholar and author C.S. Lewis defines them as: (1) to ensure fair play and harmony between individuals; (2) to help make us good people in order to have a good society; and (3) to keep us in a good relationship with the power that created us. Based on this definition, it's clear that our beliefs are critical to our moral behavior.

Q.2. (a) Explain the importance of values in human life. **(12.5)**

Ans. Generally, value has been taken to mean moral ideas, general conceptions or orientations towards the world or sometimes simply interests, attitudes, preferences, needs, sentiments and dispositions. But sociologists use this term in a more precise sense to mean "the generalised end which has the connotations of rightness, goodness or inherent desirability".

These ends are regarded legitimate and binding by society. They define what is important worthwhile and worth striving for. Sometimes, values have been interpreted to mean "such standards by means of which the ends of action are selected". Thus, values are collective conceptions of what is considered good, desirable, and proper or bad, undesirable, and improper in a culture.

According to M. Haralambos (2000), "a value is a belief that something is good and desirable". For R.K. Mukerjee (1949) (a pioneer Indian sociologist who initiated the study of social values), "values are socially approved desires and goals that are internalised through the process of conditioning, learning or socialisation and that become subjective preferences, standards and aspirations". A value is a shared idea about how something is ranked in terms of desirability, worth or goodness.

Familiar examples of values are wealth, loyalty, independence, equality, justice, fraternity and friend-liness. These are generalised ends consciously pursued by or held up to individuals as being worthwhile in themselves. It is not easy to clarify the fundamental values of a given society because of their sheer breadth.

Characteristics:

Values may be specific, such as honouring one's parents or owning a home or they may be more general, such as health, love and democracy. "Truth prevails", "love thy neighbour as yourself, "learning is good as ends itself are a few examples of general values. Individual achievement, individual happiness and materi-alism are major values of modern industrial society.

Value systems can be different from culture to culture. One may value aggressiveness and deplores passivity, another the reverse, and a third gives little attention to this dimension altogether, emphasising instead the virtue of sobriety over emotionality, which may be quite unimportant in either of the other cultures. This point has very aptly been explored and explained by Florence Kluchkhon (1949) in her studies of five small communities (tribes) of the American south-west. One society may value individual achievement (as in USA), another may emphasise family unity and kin support (as in India). The values of hard work and individual achievement are often associated with industrial capitalist societies.

The values of a culture may change, but most remain stable during one person's lifetime. Socially shared, intensely felt values are a fundamental part of our lives. Values are often emotionally charged because they stand for things we believe to be worth defending. Often, this characteristic of values brings conflict between different communities or societies or sometimes between different persons.

Most of our basic values are learnt early in life from family, friends, neighbourhood, school, the mass print and visual media and other sources within society. These values become part of our person-alities. They are generally shared and reinforced by those with whom we interact.

Types: Values can be classified into two broad categories:

(1) Individual values: These are the values which are related with the development of human personality or individual norms of recognition and protection of the human personality such as honesty, loyalty, veracity and honour.

(2) Collective values: Values connected with the solidarity of the community or collective norms of equality, justice, solidarity and sociableness are known as collective values.

Values can also be categorised from the point of view their hierarchical arrangement:

(1) Intrinsic values: These are the values which are related with goals of life. They are sometimes known as ultimate and transcendent values. They determine the schemata of human rights and duties and of human virtues. In the hierarchy of values, they occupy the highest place and superior to all other values of life.

(2) Instrumental values: These values come after the intrinsic values in the scheme of gradation of values. These values are means to achieve goals (intrinsic values) of life. They are also known as incidental or proximate values.

Importance and functions of values:

Values are general principles to regulate our day-to-day behaviour. They not only give direction to our behaviour but are also ideals and objectives in themselves. Values deal not so much with what is, but with what ought to be; in other words, they expresa moral impera-tives. They are the expression of the ultimate ends, goals or purposes of social action. Our values are the basis of our judgments about what is desirable, beautiful, proper, correct, important, worthwhile and good as well as what is undesirable, ugly, incorrect, improper and bad. Pioneer sociologist Durkheim emphasised the importance of values (though he used the term 'morals') in controlling disruptive individual passions.

He also stressed that values enable individuals to feel that they are part of something bigger than themselves. Modem sociologist E. Shils (1972) also makes the same point and calls 'the central value system' (the main values of society) are seen as essential in creating conformity and order. Indian sociologist R.K. Mukerjee (1949) writes: "By their nature, all human relations and behaviour are imbedded in values."

The main functions of values are as follows:

1. Values play an important role in the integration and fulfillment of man's basic impulses and desires in a stable and consistent manner appropriate for his living.
2. They are generic experiences in social action made up of both individual and social responses and attitudes.

3. They build up societies, integrate social relations.
4. They mould the ideal dimensions of personality and range and depth of culture.
5. They influence people's behaviour and serve as criteria for evaluating the actions of others.
6. They have a great role to play in the conduct of social life.
7. They help in creating norms to guide day-to-day behaviour.

OR

Q.2. (b) Discuss the many aspects of harmony in life. How do you go about leading a harmonious life?

Ans. Everybody in this world has one common goal: to live a harmonious life. Yes, every person may have a different view of his or her future, but all of them have a single, common target.

Some work hard to live a rich and financially stable life while some don't regard money as an important factor in order to be happy. Some people love to live in the big city and enjoy the rush of the busy lifestyle while others prefer the quiet mornings of the countryside. No matter how diverse every single person's goal is, they all have one thing in common: **the desire to live a harmonious life.**

Now, living harmoniously is not an easy thing to achieve. Some may have all the material things they want but they don't feel the harmony and peace they have hoped for. And there is a reason for that: living harmoniously does not necessarily mean having all the material things you need, but rather having your emotional and psychological needs met. **Dos And Don'ts To Live A Harmonious Life are as follows.**

Dos To Live A Harmonious Life

1. Have respect and be open-minded: Some people have difficulty trying to live a harmonious life mainly because they think too much about how others live their lives. And if the people around them don't agree with how they view certain things, these people get bothered and stressed.

A fine example would be how people who don't exactly agree with same-sex relationships get so bothered and so upset with having gay people around them. These instances get them so bothered that they ruin the way they view the world. Having respect and being open-minded can help them with this.

Think of the saying: "Live and let live." Remember that life is a choice and that is how they choose to live their life. Just respect their choices, and even if you don't agree try to be more open-minded about these people. Don't just hate them outright — in all honesty, it bothers you more that you hate them rather than it bothers them. When you try to understand and employ mutual respect to people whose way of lives don't agree with how you think one should live, it wouldn't be much of a nagging thought at the back of your mind and it will remove the worries you have.

2. Compassion is key: When one wants to live a harmonious life, all it takes is a bit of heart and loads of understanding.

This is especially true when it comes to people living in the metro. Sometimes the way of life in the city is so fast and so busy that you really forget to think about others and just want things to go your way.

When you drive and a really slow person crosses the street, you honk at that person because he or she is taking so much time from you. You are not really thinking about the fact that that person might have a slight limp or is having difficulty walking. You don't really think about how distressing it might be for that person to have a car honk at him or her really loudly.

This step is all about taking a walk in that person's shoes. When you get annoyed or angry at another person, when you want to lash out at people because they're taking too long at doing their jobs or that old lady who spilled her tea on you, try putting yourself in their shoes. Think about what that person might be going through. Maybe that old lady who spilled her tea had rheumatism, and her joints are shaking; maybe that cashier had a sick son back at home and is distracted at her job. A little less anger and a little more circumspection will help you avoid anger, and have peace inside you. Once you can achieve peace within yourself, you are a step closer in your goal to live a harmonious life.

3. It's all about perspective: In trying to live a harmonious life, most people think that it has to be about getting as much money as possible. They feel like they have to get richer for their future security. What they don't realize though, is that they work so hard to try to get richer that there comes a time when they realize that what they did is just really to save money for their retirement. When they're retired, they don't even have the energy to enjoy life more. So what should you do? Turn your perspective to life. Always think that your time here on earth is short so you should not completely fill your days with worries about the future. Save for the rainy days, but don't forget to live life one day at a time. Try to appreciate the smaller things in life. Have you ever wondered how it would feel to watch the sun rise? Or did you ever sit on the roof of your house and just watch the stars twinkle at night? These may be very simple things, but these are the things that make you appreciate what a wonderful world you actually live in, and how much of its beauty you take for granted. This is one fundamental secret in order to live a harmonious life.

4. Keep the people that know and value you and ignore those who don't: If you're the type of person who values other people's opinion, change your habit and don't take advice from just anyone. Always remember that in making life decisions. Those who matter don't mind but those who mind don't matter. This means that those people that you value the most will not criticize your life decisions because they are the people who know and understand you the most. On the other hand, those people who criticize the way you live to the point of antagonizing you are not worth minding. So to live a harmonious life, you should ignore those who are stupid enough to criticize you and value the opinion of the people who know and have stuck with you through thick and thin and know you inside out.

Don'ts To Live A Harmonious Life

1. Dont criticize to destroy: Instead, criticize to build. When you want to live a harmonious life, and when you want others to have the same, don't be a floating ball of negativity.

If you want to criticize or give your opinion to someone regarding something they do, always do so to help them improve, and phrase it in such a way that it would be more positive. Never give your opinion just for the sake of putting them down. Always remember that what you may be telling that person might destroy his or her fighting

spirit permanently. When you try to be more positive about life, it gives you a lighter feeling and a worry-free mind. This helps you focus on other things that are more important — or focus more on your happiness all in all.

2. Dont listen to other people's opinions on how you should live your life: Most of the time, people like to talk. And they will grab every opportunity to do so, going as far as to tell you how to live your life. And you, on the other hand, would try to please them and deprive yourself from doing what you really want. As a result, you stop yourself from doing the things that make you happy. You become miserable, asking yourself whether you should have been happier if you did things your way. So, never let other people dictate your life. As long as what you will do won't hurt anyone, do it. No one is stopping you. Never confine your happiness to the opinion of others. Always remember: It's your life, not theirs.

3. Dont worry too much: Worrying is just something that will stress you out and not do anything to solve your problems. It just means you have poor work and time management. What you should do when you have a big problem is not worry about it. Instead, take a step back, dispel all the worries, and try to think logically how to solve it. By doing so, you can avoid experiencing stress and become more efficient. This is a simple step but perhaps one of the most important steps to living a more harmonious life.Admittedly, to live a harmonious life is not an easy thing to achieve.

It takes a lot of mental and psychological shifts. But once you are able to do these paradigm shifts, you will be able to look at life a little better. Always remember that life is a gift and a ride — you can either grab the rails on the train and enjoy the ride or spend the rest of your life chasing after that seemingly elusive happiness and harmony.

Q.3.(a) A television channel undertakes a sting operation. This involves recording the speech and actions of a person with a hidden camera without the person's knowledge .The objective of the operation is to bring out the corruption of the person concerned. Is the operation ethical? State views for and against this operation. (12.5)

Ans. A television channel undertakes a sting operation. This involves recording the speech and actions of a person with a hidden camera without the person's knowledge. The objective of the operation is to bring out the corruption of the person concerned.

This case brings forward a burning issue of present time which is the ethicality of the sting operations. The ethical aspect of such operations are looked at by weighing the various aspects of ethical concern like the cases as discussed below:

If you ask the above question to assorted bunch of people, you will get rave opinions. Mostly all the arguments regarding the justification of sting operations will be focused on the methodology. What methods are justifiable to expose transgression? If dishonest, legitimate, when the aim is to tell the truth? Can television reporters use hidden cameras to get a story?

Answers to these questions are often contrasting. Different people have different views regarding different conditions. Over five years after India saw its first "candid camera" expose, we, the media are still debating the ethics of sting operations: or we think we are.

If we whisk out the history of sting operations in India, We will find a great record of investigative journalism. For instance, Bhagalpur blindings provide a message

the vital contribution that journalistic research can make in creating civic consciousness of human rights, more so in a society, in which ingrained maltreatment is likely to go unnoticed. Over three years, from 1979 to 1982, policemen blinded 33 criminals in Bhagalpur jail using acid. Codenamed Operation Gangajal, a report by *Indian Express*, the incident became a national scandal and 14 policemen were suspended, of 14 policemen 13 were acquitted and reinstated in service. When the Indian express brought the issue into national spotlight, the Supreme Court accepted it as writ petition.

Bofors case and fodder scam are also part of this triumphant history but with the change in the culture & time and the impact of west, sting operation are being used to raise the TRPs of news channels. The recent example of the INDYA TV's sting operations have yet again opened up the Pandora's Box of controversies. Seeing the recent developments, we can state that sting is thus reduced to huge entertainment operation. People's appetite for drama being insatiable they get easily addicted to newer forms of excitement. It is obvious that sting operations are mostly result of the competitive atmosphere of one upmanship. But we should presume that the world has changed because of competition. If we can bring in wisdom and restraint to at least few individuals who are to decide our fate then the purpose of sting operation is justified. In an evolving media atmosphere any final word would be vain and let us wait for more churning and reformation.

In spite of the fact that we have a traditionally open society, such investigative journalism also bring out the questions regarding privacy. In various European countries like France, Germany and Denmark access to privacy is an offense. While in U.S.A, media organizations are allowed to publish almost any true material about public figures. Unfortunately India today is at the moral and ethical crossroads.

Moreover the problem with sting operations is not that it blows the lid of the crime and corruption, but it does so by participating in the offence. It's true that the problem of corruption has now reached such endemic levels that only by using the techniques of entrapment can investigators catch the guilty, but journalists had various problems with this approach.

The classic ethical problem of journalism comes to haunt all the sting operations. How one can be declared criminal or responsible for a crime that he would not have committed if you hadn't encouraged him. It's true that some level of encouragement or entrapment is necessary to catch the guilty, is part of law enforcement. For example a dummy client is always sent to catch the harlot in a bawdyhouse but only when the money has exchanged hands.

Operation west end by tehelka has again struck hard on the morals; Although Tehelka has been the most impressive investigative story of our times. But its methods will always be put on the corners because it is very challenging for any journalist to use them again.

The central point is that investigative journalism that insists on going after information through deception and invasion of privacy can have only one argument: a *large social purpose*.

Purpose is what matters the most, if a sting operation is conducted keeping in mind the larger goodness of the society then it has to be commended and if a method is devised and implemented to suit the means of vested interests and to harass innocent people then it has to be condemned.

In 1981,a reporter bid and brought women "*KAMALA*" for Rs. 2300 at a sale in Madhya Pradesh to establish trafficking in women and the involvement of top bananas in the racket. This used to be face of sting in India. Hidden cameras, ultra sensitive microphone, all these were virtually unheard of, in Indian journalism 20 years ago. But with the advent of these, the morals have been rewritten and purposes have altered to political profits and raising the TRPs of news channels.

In the end, but in any condition if sting operations want to endure without being unethical, they must fulfill some professional ethical standards, like the information chased must largely reflect its relation to a civic purpose. The public value of such information must clearly dominate the injury caused by the deception and privacy intrusion and the sting operations must not be employed where the information can be collected by aboveboard means. As in the case in question I feel that the sting operation is not justified.

Q.3. (*b*) Business and ethics do not go together. Discuss the statement giving reasons for and against it. **(12.5)**

Ans. A century ago it was believed that good deeds would be rewarded and evil ones would be punished in the afterlife. In our more secular and impatient age, many people evidently are under the illusion that the market system—perhaps abetted by the Securities and Exchange Commission's enforcement division—is capable of meting out justice in this life.

The Business Roundtable earlier this year released a report, "Corporate Ethics: A Prime Business Asset," which says, "In the view of the top executives represented in this study, there is no conflict between ethical practices and acceptable profits. Indeed, the first is a necessary precondition for the second." Kenneth Blanchard, a co-author of "The One Minute Manager," writes in a special report on ethics in American business issued by Touche Ross that "successful companies over the long term tend to be ethical companies." In the same report, former SEC Chairman John Shad assures us, "Ethics pays: It's smart to be ethical." Others have suggested that restoring executive integrity is necessary to maintain public trust in the U.S. business system.

Does corporate social responsibility—or its current variant, "business ethics"—invariably pay? It is certainly possible to come up with some cases of virtue rewarded and vice punished. Johnson & Johnson is the most widely cited example of the former. Johnson & Johnson's management did the "right" thing by removing Tylenol from store and medicine chests during a poisoning scare. And the company's customers rewarded it by again buying the product once the scare had passed.

Unfortunately, all stories about corporate social responsibility do not have such happy endings. During the 1960s and '70s, Cummins Engine, Levi Strauss, Polaroid, Control Data, Atlantic Richfield and Dayton-Hudson were commonly acknowledged to be firms that exhibited an unusually high degree of social commitment. Yet, over the last decade, each of these companies has experienced serious financial difficulties. With the possible exception of Control Data, the companies' social commitments did not cause their problems. But neither did they prevent them. Indeed, their experience suggest that in many cases corporate responsibility, rather than being the cause of increased profitability, may instead be a consequence of it: A more profitable firm is better able to maintain some unprofitable facilities in economically depressed areas and contribute generously to cultural and civic activities.

The relationship between ethics and profits is a rather tenuous one, whether one defines corporate ethics narrowly in terms of obeying the law, or more broadly in terms of management's acceptance of responsibility for the welfare of the company's stockholders. Being "ethical" or "responsible" is no more, or less, likely to be rewarded in the marketplace than is investing heavily in research and development or having excellent labor relations. Ethics are certainly not a barrier to financial success, but neither are they a prerequisite to it.

While corporate codes of conduct and a strong corporate culture may improve the economic performance of some companies, it is naive to regard them or any other index of commitment to ethical standards as critical to the success of all companies. In fact, some of the companies profiled in the Roundtable's report will undoubtedly do poorly over the next decade, and other far less responsible firms will do extremely well. Some companies and individuals have suffered financially as a result of breaking the law or being insensitive to community concerns, but consider the enormous profits that are made selling illegal drugs and pornography. And for every insider trader who gets caught, one presumes that there are others who live happily ever after.

If good ethics are good business, then why do so many managers find themselves under financial pressures to cut corners? Moreover, to base the case for ethical conduct on economic self-interest is not only misleading, it trivializes the concept of ethics. Equating unethical conduct with errors in business judgment robs business decision-making of the element of moral choice. It also begs the more important and interesting question: What should managers do when there is a conflict between ethics and profits?

Ethics often pay, but sometimes they can be costly. The Roundtable and Touche Ross reports would be more credible if they cited examples of individuals and companies that did what they thought was right even though they lost money as a result. Have any of the firms in the Roundtable study ever rewarded an executive who cost the company a sale by following his or her conscience? Or refrained from entering a potentially profitable venture on the grounds that it was morally suspect? If not, are not the studies implying that one should be ethical only when it pays?

It is irresponsible to imply that acting responsibly is always costless, and it is unethical to base the case for ethics on economic self-interest. If we want executives to act more ethically, we need to be more honest with them and they need to be more honest with each other. The market has many worthwhile features, but setting an appropriate price on virtues not among them.

Q.4.(a) List the major problems in environmental ethics. As an individual list the steps that you can take to save the environment. **(12.5)**

Ans. Environmental ethics is the philosophical discipline that considers the moral and ethical relationship of human beings to the environment. In other words: what, if any, moral obligation does man have to the preservation and care of the non-human world?

While ethical issues concerning the environment have been debated for centuries, environmental ethics did not emerge as a philosophical discipline until the 1970s. Its emergence was the result of increased awareness of how the rapidly growing world population was impacting the environment as well as the environmental consequences that came with the growing use of pesticides, technology, and industry.

Environmental ethics helps define man's moral and ethical obligations toward the environment. But **human values** become a factor when looking at environmental ethics. Human values are the things that are important to individuals that they then use to evaluate actions or events. In other words, humans assign value to certain things and then use this assigned value to make decisions about whether something is right or wrong. Human values are unique to each individual because not everyone places the same importance on each element of life. For example, a person living in poverty in an undeveloped country may find it morally acceptable to cut down the forest to make room for a farm where he can grow food for his family. However, a person in a developed country may find this action morally unacceptable because the destruction of forests increases carbon dioxide emissions into the atmosphere, which can negatively impact the environment.

Environmental ethics, along with human values, make for challenging philosophical debates about man's interaction with the environment. Water and air pollution, the depletion of natural resources, loss of biodiversity, destruction of ecosystems, and global climate change are all part of the environmental ethics debate. And we see that within the discipline of environmental ethics there are tough ethical decisions humans must consider.

Many traditional western ethical perspectives, however, are *anthropocentric* or human-centered in that either they assign intrinsic value to human beings alone (i.e., what we might call anthropocentric in a *strong* sense) or they assign a significantly greater amount of intrinsic value to human beings than to any non-human things such that the protection or promotion of human interests or well-being at the expense of non-human things turns out to be nearly always justified (i.e., what we might call anthropocentric in a *weak* sense). For example, Aristotle maintains that "nature has made all things specifically for the sake of man" and that the value of non-human things in nature is merely instrumental. Generally, anthropocentric positions find it problematic to articulate what is wrong with the cruel treatment of non-human animals, except to the extent that such treatment may lead to bad consequences for human beings. Immanuel Kant ("Duties to Animals and Spirits", in *Lectures on Ethics*), for instance, suggests that cruelty towards a dog might encourage a person to develop a character which would be desensitized to cruelty towards humans. From this standpoint, cruelty towards non-human animals would be instrumentally, rather than intrinsically, wrong. Likewise, anthropocentrism often recognizes some non-intrinsic wrongness of anthropogenic (i.e. human-caused) environmental devastation. Such destruction might damage the well-being of human beings now and in the future, since our well-being is essentially dependent on a sustainable environment.

When environmental ethics emerged as a new sub-discipline of philosophy in the early 1970s, it did so by posing a challenge to traditional anthropocentrism. In the first place, it questioned the assumed moral superiority of human beings to members of other species on earth. In the second place, it investigated the possibility of rational arguments for assigning intrinsic value to the natural environment and its non-human contents. It should be noted, however, that some theorists working in the field see no need to develop new, non-anthropocentric theories. Instead, they advocate what may be called *enlightened* anthropocentrism (or, perhaps more appropriately called, *prudential* anthropocentrism). Briefly, this is the view that all the moral duties we have towards the environment are derived from our direct duties to its human

inhabitants. The practical purpose of environmental ethics, they maintain, is to provide moral grounds for social policies aimed at protecting the earth's environment and remedying environmental degradation. Enlightened anthropocentrism, they argue, is sufficient for that practical purpose, and perhaps even more effective in delivering pragmatic outcomes, in terms of policy-making, than non-anthropocentric theories given the theoretical burden on the latter to provide sound arguments for its more radical view that the non-human environment has intrinsic value. Furthermore, some prudential anthropocentrists may hold what might be called *cynical* anthropocentrism, which says that we have a higher-level anthropocentric reason to be non-anthropocentric in our day-to-day thinking. Suppose that a day-to-day non-anthropocentrist tends to act more benignly towards the non-human environment on which human well-being depends. This would provide reason for encouraging non-anthropocentric thinking, even to those who find the idea of non-anthropocentric intrinsic value hard to swallow. In order for such a strategy to be effective one may need to hide one's cynical anthropocentrism from others and even from oneself. The position can be structurally compared to some indirect form of consequentialism and may attract parallel critiques.

Make sure to use your clothes washer and dryer only when you have a full load. You could save 1,000 gallons of water/month!

1. Water your lawn in the early morning when it is cooler and drier. Watering in mid-day, especially when it is hot and dry, leads to water evaporation. Watering in the evening can also work, but some lawn care experts say that can put your lawn at much higher risk for fungus and other grass aclgrment.
2. Pick up some reusable cloth bags to use at your local grocery store. Say no to both, "paper" and "plastic!" It can take up to a thousand years for plastic bags to degrade. Paper bags (although recyclable), aren't much better. In the US alone, approximately 14,000,000 trees are cut down each year to be made into paper bags.
3. Replace your old light bulbs with energy-saving fluorescent; and LED bulbs. Sure, they may cost more money, but you will save on your energy bill in the future and they last longer. An LED light can be seventy-five percent more energy efficient than your old incandescent light bulbs and can last up to twenty-five times longer.
4. Try shortening your shower by just a minute. You could save 150 gallons of water per month! And it's not just water your shower uses. Running your shower for just 5 minutes is the energy equivalent of leaving a light on for 14 straight hours.
5. Skip the dishwasher built-in dry option and simply air dry your dishes. Doing this conserves energy.
6. Collect rainwater and save it to water your lawn. You can buy rainwater barrels at your local home improvement store or even make your own.
7. Get rid of objects containing mercury in your home. They're a health risk and harmful to the environment. Some cities have designated locations where you can easily turn in and recycle hazardous waste like mercury. You can look up which locations will take mercury (and also batteries and other hazardous waste objects) using Earth 911's recycling center search locater.
8. Set your fridge between 36-38 F degrees and freezer to be between 0-5 F degrees.

9. Eat no meat and animal products for one day a week. One study estimated that a quarter pound of beef is equal to approximately 460 gallons of water. Factor in the methane, as well as other greenhouse gay emissions of cattle, and the fossil fuels it took to get the beef to you. Even one day of being a vegetarian is good for your health and the Earth.
10. UNPLUG unused appliances. Even when powered off, plugged-in appliances use electricity.
11. Plant trees to shade your home. You can save money on air conditioning.
12. Print double-sided. If possible, advocate to make your office or school paper-free.
13. Buy used furniture and re-purpose it. You save money and trees (plus, create original furniture!)
14. Close vents and doors in unused rooms to conserve heat.
15. Buy a stylish ceramic mug for your daily cup of coffee instead of using a disposable cup. If you're someone who buys a cup of coffee or tea in a disposable cup every day, your cups alone are an estimated 23 pounds of waste per year.
16. Wrap your water heater in an insulated blanket.
17. Try a dimmer switch. They're easy to install and save energy!
18. Turn your computer off when you go to sleep. You'll conserve energy.
19. Make sure to inflate your tires properly. This preserves the life of the tires, creates a safer ride, and saves gas.

Q.4. (b) Enlist the professional responsibilities of a professional. Explain any two of them with example. **(12.5)**

Ans. Occupation, practice, or vocation requiring mastery of a complex set of knowledge and skills through formal education and/or practical experience. Every organized profession (accounting, law, medicine, etc.) is governed by its respective professional body. Every professional body has its own professional responsibility. For example for a lawyer there are certain professional responsibilities to be maintained. In terms of legal practice **Professional responsibility** is the area of that encompasses the duties of attorneys to act in a professional manner, obey the law, avoid conflicts of interest, and put the interests of clients ahead of their own interests. Engineering also has emerged as a strong profession with governing bodies helping to set it up.

Engineering is transforming science into useful products for human comfort. Engineering is something that engineers do, and what they do has profound effects on others. Ethics in engineering then is the ability as well as responsibility of an engineer to judge his decisions from the context of the general wellbeing of the society.

It is the study of moral issues that confront engineers and engineering organizations when some crucial decisions are taken. Engineering research and practice requires that the task being performed considers all the pros and cons of a certain action and its implementation. Professional engineering bodies like IEEE, ASME, IEI etc., have evolved comprehensive ethics codes relevant to their respective professions, based on the rich experience of their members. Independent organizations like NSPE have prepared value based ethical codes applicable to all engineering professions.

Ethical standards in engineering are influenced by many factors:

1. Engineering as an experimentation for the good of mankind is a notable factor involving far reaching consequence,

2. Ethical dilemmas make engineering decisions relatively difficult to make.
3. Risk and safety of citizens as a social responsibility is a prime concern of an engineer,
4. Technological advancement can be very demanding on the engineering skill in the global context,
5. Moral values and responsible conduct will play a crucial role in decision making.

General criteria to become a Professional engineer:

- Attaining standards of achievement in education, job performance or creativity in engineering that distinguish engineers from engineering technicians and technologists.
- Accepting as part of their professional obligations as least the most basic moral responsibilities to the public as well as to their employers, clients, colleagues, and subordinates.

IEEE Code of Ethics:

The members of the IEEE, in recognition of the importance of their technologies affecting the quality of life throughout the world, and in accepting a personal obligation to their profession, its members, and the communities they serve, do hereby commit themselves to the highest ethical and professional conduct and agree.

- To accept responsibility in making engineering decisions consistent with the safety, health, and welfare of the public, and to disclose promptly factors that might endanger the public or the environment.
- To avoid real or perceived conflicts of interest whenever possible and to disclose them to the affected parties when they do exist.
- To be honest and realistic in stating claims or estimates based on available data.
- To reject bribery in all its forms.
- To improve the understanding of technology, its appropriate application, and potential consequences.
- To maintain and improve their technical competence and to undertake technological tasks for others only if qualified by training or experience, or after full disclosure of pertinent limitations.
- To seek, accept and offer honest criticism of technical work, to acknowledge and correct errors, and to credit properly the contributions of others.
- To treat fairly all persons regardless of such factors such as religion, gender, disability, age, or national origin.
- To avoid injuring others, their property, reputation, or employment by false or malicious action.
- To assist colleagues and co-workers in their professional development and to support them in following this code of ethics.

Code of ethics of engineers:

- Engineers shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties.

- Engineers shall perform services only in the areas of their competence.
- Engineers shall issue public statements only in an objective and truthful manner.
- Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest.
- Engineers shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
- Engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the profession.
- Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional development of those engineers under their supervision.

Code of Ethics by ASME: Engineers uphold and advance the integrity, honor, and dignity of the engineering profession by using their knowledge and skill for the enhancement of human welfare; being honest and impartial, and serving with fidelity their clients (including their employers) and the public; and striving to increase the competence and prestige of the engineering profession.

1. Engineers shall hold paramount the safety, health, and welfare of the public in the performance of their professional duties.
2. Engineers shall perform services only in the areas of their competence; they shall build their professional reputation on the merit of their services and shall not compete unfairly with others.
3. Engineers shall continue their professional development throughout their careers and shall provide opportunities for the professional and ethical development of those engineers under their supervision.
4. Engineers shall act in professional matters for each employer or client as faithful agents or trustees, and shall avoid conflicts of interest or the appearance of conflicts of interest.
5. Engineers shall respect the proprietary information and intellectual property rights of others, including charitable organizations and professional societies in the engineering field.
6. Engineers shall associate only with reputable persons or organizations.

Social Responsibility to uphold Ethical values of the society:

- Public Safety: Engineers shall ensure the safety, health and welfare of the public in the performance of their professional duties. Safety of the people must always come first. They should promptly disclose to all concerned the factors that might endanger the public safety or the environment.
- Compliance with social order: Engineers shall abide by the laws of the land in which the work is performed, respect the local customs, uphold the human rights, safeguard public property; abjure violence and acts of terrorism.
- Impartiality and fairness: Engineers shall treat fairly all persons regardless of such factors as race, caste, religion, state, gender or national origin.
- Environment Protection and Sustainable Development: Engineers shall strive to protect and maintain clean, healthy and safe environments, sustainable development and comply with the statutory requirements.

Responsibility to maintain high standards of professional quality:

- Development of Technical and Managerial Skills: Engineers shall maintain state-of-the-art professional skills, continue professional development and provide an opportunity for the professional development of those working under their command.
- Undertake Assignement where professionally competent: Engineers shall perform service only in the area of their technical competence.
- Performance Responsibility: Engineers shall seek work through fair and proper methods, and shall take full responsibility for the task undertaken by them.
- Proper Verification of Document and Production Processes: Engineers shall approve only those designs, which safely and economically meet the requirement of the client and shall not approve any engineering document, design, materials, stages of work which they consider to be unsound.

Q.5.(a) Write about engineering as social experimentation. **(12.5)**

Ans. All products of technology present some potential dangers, and thus engineering is an inherently risky activity. In order to underscore this fact and help in exploring its ethical implications, we suggest that engineering should be viewed as an experimental process. It is not, of course, an experiment conducted solely in a laboratory under controlled conditions. Rather, it is an experiment on a social scale involving human subjects.

Engineering has a direct and vital effect on the quality of life of people. Accordingly, the services provided by engineers must be dedicated to the protection of the public safety, health and welfare.Because the Professional Ethics shall be a part of education *for every socially important profession*, as one of essential constituents of the meaning of the term *professionalism*.

General responsibility of engineering as society:

- Engineers are primarily considered as technical enablers or facilitatcrs, rather than being the sole experimenters.
- Engineers'responsibility is shared with management, the public and others.
- The other unique responsibility of engineers include monitoring projects, identifying risks, providing customers and clients the required information to make reasonable decisions.

While exercising engineering duties, the engineers should display the virtue of being morally responsible person. General features of moral responsible engineers:

1. **Conscientiousness:** Conscientiousness means commitment to live according to certain values. It implies conscientiousness. · Engineers have to be sensitive to a range of moral values and responsibilities, which are relevant in a given situation. Also engineers should have the willing to develop the skill and apply the effort needed to reach the best balance possible among various considerations. · Open eyes, open s and an open mind' are required to evaluate a given situation, its implication and to determine who are involved or affected. · The primary duty of morally responsible engineers is to protect the safety of human beings and respect their rights of consent.
2. **Relevant information:** Conscientiousness is impossible without relevant factual information. · Engineers have to show the commitment to obtain and properly

gauge all the information related to meeting one's moral obligations. · The two general ways of losing perspective on the context of one's work are given below. 1. To grasp the context of one's work, one should be aware of implication of that work. 2. To shifts the responsibility and blames the others in the organization. Thus, conceiving engineering as social experimentation, it is important that engineers act as responsible agents. The responsible agents require · Imaginative forecasting of possible bad side effects · The development of an attitude of defensive engineering' and preventive technology' · Careful monitoring of projects and · Respect for people rights to give informed consent

3. **Moral Autonomy :** The moral autonomy is the ability to think critically and independently about moral issues and apply this moral thinking to situations that arise during the professional engineering practice. It is understood that an individual personality depends on the integration of his moral benefits and attitude. When one's labor and skills are sold, then it is an illusion to think that the person is not morally autonomous. As an experimenter, an engineer has to undergo an extensive and updated training to form his identity as a professional. There will be a personal involvement in one's work. The magnitude of moral autonomy to be experienced by engineering is highly influenced by the attitude of company's managements. Where there is a treat for engineers'moral autonomy, then engineers can look for moral support from their professional societies and outside organization.

4. **Accountablility Conscientiousness:** The term accountability' means being responsible, liable, answerable or obligated. In proper terms, the accountability refers to the general tendency of being willing to submit ones action to any type of moral scrutiny and be responsive to others assessment. It involves a willingness to present morally convincing reason for ones action and conduct. Morally responsible people are expected to accept morally responsibility for their action. According to Stanely Milgram, people are not willing to accept personal accountability when placed under authority. There exist a lot of difference and separation between casual influence and moral accountability in all professions including engineering. Because of modern engineering practices, the complication in accepting one's moral accountability further worsened. Some of these situations are explained below: 1. Modern engineering projects involve teamwork, in which each members contributes a small of personal accountability. 2. The modern organization are based on the principle of division of work'. Due to this division of work, the personal accountability also stretched within hierarchies of authority. 3. A preoccupation with legalities in a time of proliferating malpractice lawsuits.

Q.5. (b) Discuss the broad categories of computer crime. **(12.5)**

Ans. There are primarily four general types of computer crimes. However, in practice, multiple crimes, that is, concurrent criminality or lesser offenses, can occur during any given criminal transaction, resulting in an overlap between the classifications.

1. Computer As the Target

Crimes in which the computer is the target include such offenses as theft of intellectual property, theft of marketing information (e.g., customer lists, pricing data, or marketing plans), or blackmail based on information gained from computerized files (e.g., medical information, personal history, or sexual preference). These crimes also

could entail sabotage of intellectual property, marketing, pricing, or personnel data or sabotage of operating systems and programs with the intent to impede a business or create chaos in a business' operations.

Unlawful access to criminal justice and other government records is another crime that targets the computer directly. This crime covers changing a criminal history; modifying want and warrant information; creating a driver's license, passport, or another document for identification purposes; changing tax records, or gaining access to intelligence files.

Techno-vandalism occurs when unauthorized access to a computer results in damage to files or programs, not so much for profit but for the challenge. In such cases, the damage or loss may be intentional or accidental.

Another crime in this category is techno-trespass, that is, "walking" through a computer just to explore. In such cases, the intruder only looks at a file, but even this violates the owner's privacy. This would be the technological equivalent of a criminal trespass.

2. Computer As the Instrumentality of the Crime

In common law, instrumentality refers to the diversion of a lawfully possessed item, that is, an instrument, to facilitate committing a crime. In this category, the processes of the computer, not the contents of computer files, facilitate the crime.

Essentially, the criminal introduces a new code (programming instructions) to manipulate the computer's analytical processes, thereby facilitating the crime. Another method involves converting legitimate computer processes for illegitimate purposes. Crimes in this category include fraudulent use of automated teller machine (ATM) cards and accounts; theft of money from accrual, conversion, or transfer accounts, credit card fraud; fraud from computer transactions (stock transfers, sales, or billings); and telecommunications fraud.

One example of using a computer as the instrument to commit a crime is the growing problem of individuals' using cellular phones and electronically billing charges to other customers. In these cases, offenders obtain cellular billing identification codes by using scanning devices, which are small parabolic (curve-shaped) antenna connected to portable computers. When activated, these scanners capture and store account numbers transmitted by cellular phones.

3. Computer is Incidental to Other Crimes

In this category of computer crime, the computer is not essential for the crime to occur, but it is related to the criminal act. This means that the crime could occur without the technology; however, computerization helps the crime to occur faster, permits processing of greater amounts of information, and makes the crime more difficult to identify and trace. Such crimes include money laundering and unlawful banking transactions, BBSs supporting unlawful activity, organized crime records or books, and bookmaking. In one case, a suspect committed murder by changing a patient's medication information and dosage in a hospital computer.

Cases involving drug raids, money laundering seizures, and other arrests also have produced computers and electronic storage media containing incriminating information. Many times, the criminals encrypt the data or design the files to erase themselves if not

properly accessed. In some instances, criminals even destroy the storage media, such as disks, to eliminate evidence of their illegal activities.

4. Crimes Associated With the Prevalence of Computers

The simple presence of computers, and notably the widespread growth of microcomputers, generates new versions of fairly traditional crimes. In these cases, technological growth essentially creates new crime targets. Software piracy/ counterfeiting, copyright violation of computer programs, counterfeit equipment, black market computer equipment and programs, and theft of technological equipment fall into this category of computer crime.

One offense in this category occurs with relative frequency—the violation of copyright restrictions of commercial software. Initially, this offense may not seem like a serious crime; yet, the potential loss to businesses can be quite staggering.