

**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 us than others, and where they rank in our psyche impacts our career choices. For example, valuing security more than achievement would make us 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 ourself. 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?

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 that are more than a criticism of engineering's history with today's practice. Let's take a closer look at Ferguson's list. "Efficiency" is the first imperative Ferguson identifies "but" permitting us to connect engineering's history with today's practice. Ferguson's list "permits" us to connect engineering's history with today's practice. Let's take a closer look at Ferguson's list. "Efficiency" is a slippery term, meaning "most powerful" information exists, developing ways to incorporate it into engineering work is certainly points out, rightly, that "efficiency" is a slippery term, meaning "most powerful" information exists, developing ways to incorporate it into engineering work is certainly utility. Engineers always define "efficiency" so that they can measure it (of something engineers can, and should, do. Indeed, they have long done this with the components), assign numbers, and thereafter seek to control it. That is not surprising.

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 labour-saving devices. Engineers will, Ferguson thinks, designs 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 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 fave. Labor has a tendency to become scarce, and so costly, where it is not routinely 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. When, 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

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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. 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 that this 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 price 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. Where 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". Engineering was, and remains, a creature of large organizations. Louis XIV's army, for example, was the largest organization of its day, created engineering to do what civilian artists 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 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 do it, but either they will do what anyone else could do or they will do the very large, 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 ~~such~~ ^{one} human being is incapable. Hence, there is work for engineers.

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, 10,000 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 neighbouring 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 1993. 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

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, thus 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.

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 reliable 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.

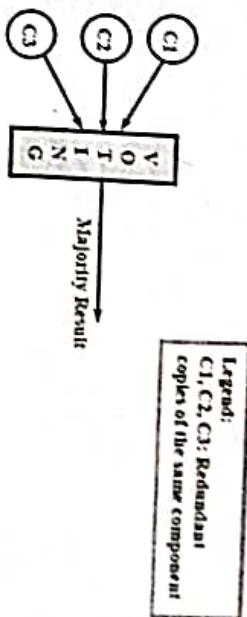
In real-time systems on the other hand, safety and reliability are coupled together. Before analyzing why safety and reliability are no longer independent issues in real-time systems, we need to first understand what exactly is meant by a fail-safe state.

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 becomes 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 standstill leading to traffic jams. However, in many real-time systems there are no fail-safe states 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 aircraft fails, a fail-safe state may not be one where the engine is switched off to 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 aircraft is at most 1 failure per 100 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 fail simultaneously after voting would be erroneous if two or more components fail (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.
Note: Attempt any five questions. All questions carry equal marks.

(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.
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 (GI), 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 protect 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 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 power to give raises or promotions to the employee. Discussions about the conflict 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 unauthorized 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, 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 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 whistleblowing, 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 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 multi-cultural 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.

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

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 friendliness. 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 materialism 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 not yet been explored and explained by Florence Kluckhohn (1949) in her studies of 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 personalities. 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 sociability are known as collective values.

Values can also be categorised from the point of view their hierarchical arrangement: are sometimes known as ultimate and transcendent values. They determine the schema 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 deal not so much with what is, but with what ought to be; in other words, they express moral imperatives. 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, ugly, incorrect, improper, 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. Modern 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. Yet 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. I 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, how they choose to live their life. Just respect their choices, and even if you don't agree to be more open-minded about these people. Don't just hate them outright — in 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 other ways 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 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. Don't 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 harmonious.

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 without the person's knowledge. Is the operation ethical? State views for and against 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?

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 concerned.

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 such 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 on the methodology. What methods are justifiable to expose transgressions? If dishonesty is 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 "camera" expose, we, the media are still debating the ethics of sting operations. We think we are.

If we whisk out the history of sting operations in India. We will find a great message 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. Condemned 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 a 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 INDIA TV's sting operation 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 banana 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.

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." 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 stores 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, Polar Control Data, Atlantic Richfield and Dayton-Hudson were commonly acknowledged 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 expenses 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 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.

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 humans. From this standpoint,

things 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 constituents. 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 remediating 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 it; a 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 ailment.
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 locator.
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 gas emissions of cattle, and the fossil fuel 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 is 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 criterias 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 accordance with social order. Engineers shall respect the local customs, uphold the human rights, and public property; abjure violence and acts of terrorism.
 - **Integrity and fairness:** Engineers shall treat fairly all persons regardless of 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 Assignment 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 facilitators, rather than being the sole experimenters.
- 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

Evaluate 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 shift 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 "Innegative 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 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. Accountability 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 Stanley Milgram, people are not willing to accept personal accountability when placed under authority. There exist a lot of difference and separation between causal 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. (12.0)

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

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 billing); 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 mounted 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, IRS supporting unlawful activity, organized crime records or books, and bookkeeping. 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 delete the files to erase themselves if not

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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.

FIRST TERM EXAMINATION [FEB. 2018]
EIGHTH SEMESTER [B.TECH]
HUMAN VALUES AND PROFESSIONAL ETHICS-II
[ETHS-402]

Time : 1½ hrs.

M.M. : 30

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

Q.1. Write any two short notes:

Q.1. (a) Effects of Social Media on Values.

(5)

Ans. Social media are set of tools for people to exchange information, audio and video contents and disseminate different ideas in a virtual community. On the other hand the term ethics is defined as "the ability to define and differentiate between what is right and what is wrong". The way social media is being used these days brings lots of side effects with it, the most important been on the human ethics. Researches have established a strong correlation between the social media and the growing impact it us on the people who use this medium. The term privacy and ethics does not come very often in place since the internet is considered as a completely free market place and there are specific rules and regulations regarding the publicity of any information. That is why crimes like cyber bullying, Hacking, Privacy infringements, electronic thefts and personal defamation has been on the rise from the last 5 to 10 years. This situation is so threatening that governments are spending billions of dollars just to control the flow of information on the social media. Whenever this will happen, one this is for sure that till that time, we will see people behavior being changed to a new side significantly.

Our daily routine is consumed so much by the social media that we simply cannot live without it anymore. Roughly, an ordinary professional uses the social media for one or more of the following four broad categories i.e. to build your social circle, to obtain new information, to spread some information and knowledge and to expand business. Ethical issues related with the social media.

The impact of social media on our life has been very mixed, with ranging from good and bad effect working side by side. But the focus here will be the impact of social media on our ethical issues. Effects like cyber bullying, privacy issues, social injustice and ignorance, effects on family values and lack of pure judgments are some of them.

Q.1. (b) Indian Pluralism the way of life.

(5)

Ans. India offers a unique plurality of traditions. Among these the Brahminical concept of *dharma* which describes the duties of the individual has often been regarded as dominant because many rights merely follow from these duties. It is a basic question whether modern concepts of human rights interfere with traditional notions of dharma, because in the law books of the *Dharmashastras*, there is no equality before law or equal protection of law, since society has been arranged through a rigid system of social hierarchy based on caste. By its very nature, the caste system goes against respect for an individual's dignity. It has been called the 'duty-first value system of Indian culture' and reflects some of the principal differences between the political traditions of India and Europe. Unlike in Europe, man and society in India have been perceived as antagonistic to each other, while in western political philosophy the triangle of 'individual-society-state' functions as the key to the explanation of major developments.

However, as several studies on caste among the Indian Muslims have shown, while influence of Hindu social norms on the Muslims might partially explain the continued existence of caste among them, it does not fully explain how the Muslims of the region came to be stratified on the basis of caste in the first place. It also ignores the role of scholars of the *ulama*, scholars of Islamic jurisprudence, in providing religious legitimacy to caste with the help of the concept of *kaf'a*.

The caste system was described in the *Rig Veda*, an ancient Brahmanical text, as a social order intended to maintain harmony in society. It divides people into four main varnas, but there also are those outside the system, the "untouchables" (Avarna). Though discrimination based on caste has been outlawed since India's constitution was adopted in 1950, the practice still pervades society.

Caste, which was a matter of vital importance to the Vedic Brahmins of India, was one of utter indifference to the Buddha, who strongly condemned the debasing caste system. In his Order of Monks all castes unite as do the rivers in the sea. They lose their former names, castes, and clans, and become known as members of one community, the Sangha.

Like a lot of other countries in the world at the turn of the century, India seems to be confronted with a double challenge. From the outside it is the multifarious and multidimensional process called globalization; from within we witness development of disintegration called ethno-nationalism or religious fundamentalism. Both are interlinked; both tend to have a wide range of implications, and both might undermine the traditional concept of the nation-state. During the last decade, crises symptoms in India have multiplied. Many social (particularly caste) and religious conflicts presents threat to secularism and democracy. Thus, many questions about India's political identity have to be posed or reformulated again and possibly new answers have to be considered. Since a dialogue by its very nature has to be an open-ended process, it was not expected that the contributions to be discussed at the workshop should consider all relevant aspects of or come up with answers in a strong logical sequence. Instead, the idea was that they should be able to raise questions that have specific political consequences and social implications and indicate possible directions along which answers could be found. Such eclecticism, a necessary part of a dialogic process used and the conclusions pressed in the analyses.

Q.1. (e) Engineer's responsibility while designing any machine.

Ans. Engineers have great ethical and moral responsibilities while designing any machine. The engineers recognize that the greatest merit is the work and exercise that profession committed to serving society, attending to the welfare and progress of mankind. By transforming nature for the benefit of mankind, engineers must increase their awareness of the world as the abode of humanity; their interest in the universe is a guarantee of overcoming their spirit, and knowledge of reality to make the world fairer and happier. The engineer should reject any paper that is intended to harm the general interest, thus avoiding a situation that might be hazardous or threatening to the environment, life, health, or other rights of human beings. It is an inescapable duty of the engineer to uphold the prestige of the profession, to ensure its proper discharge, to maintain a professional demeanor rooted in ability, honesty, fortitude, temperance, magnanimity, modesty, and justice; with the consciousness of individual and social responsibility to the social good. The engineers and their employers must ensure the continuous improvement of their knowledge, particularly of their profession, being subordinate to the social good. The engineers and their employers must disseminate their knowledge, share their experience, provide opportunities for education and training of workers, provide recognition, moral and material support to the workers where they studied, thus returning the benefits and opportunities they have received. It is the responsibility of the engineers to carry out their work efficiently and to support the law. In particular, they must ensure compliance with standards of worker protection as provided by the law. As professionals, the engineers are expected to commit themselves to high standards of conduct (NSPE).

Q.2. Describe the Accident of Bhopal Gas Plant. What measures should be taken to avoid such huge tragedy in future?

Ans. Thirty years ago, toxic gas leaking from Union Carbide's factory in Bhopal claimed more than 5,000 lives and exposed more than half a million people to harm.

Toxins. The negligence and human tragedy made Bhopal synonymous with industrial disaster and showed just how harmful chemical pollution is to health and well-being. The enormous human loss calls for remembering the victims and stronger engagement on a wide range of pollution management and environmental health issues to prevent similar tragedies.

A chemical gas spilled from a pesticide factory owned by Union Carbide. More than 40 tons of gas created a dense cloud over more than half a million people and killed thousands. None of the six safety systems at the plant worked to prevent the disaster. The company's own documents prove the plant was designed with "untested" technology. Today, clean-up of the site is still pending, those who survived the disaster don't have alternate livelihood opportunities and victims are still suffering.

The company abandoned the factory site without cleaning and restoring it to its original state. The contaminated land has not been cleaned up and families too poor to move continue to live there. The livelihoods of more than 30,000 people are affected by toxic chemicals through groundwater and soil contamination. Health risks and illnesses including cancer, birth defects, fevers, boils, headaches, nausea, lack of appetite, dizziness, and constant exhaustion continue to plague a new generation. Tests published in 2002 reported dangerous toxins in the breast milk of nursing women living near the factory.

Recent reports confirm that the contamination is not diminishing with time. Water from a hand pump in Atal Ayub Nagar, already lethal by 1999, has become seven times more toxic since then. The rate of birth defects in the contaminated areas is ten times higher than in the rest of India.

In 2001, Dow Chemical purchased Union Carbide. The governments of India and the state of Madhya Pradesh are continuing the court battle with the company to accept environmental liabilities through the purchase.

Preventing Environmental Disasters

While natural disasters are largely unpredictable, environmental disasters are caused directly or indirectly by human behavior. Chemical disasters, like the one in Bhopal, are preventable if risks are identified and addressed early on.

It will take the combined effort of competent authorities, private sector and society to prevent tragic environmental events from happening. Some measures include developing policies to ensure that industries operate in accordance with technical and safety standards and allocating resources for risk assessment and monitoring. Most of all, it's important to adhere to environmental norms. Taking environmental safety and public health risks seriously, and promoting do-no-harm industrial development can make a big difference.

There is a clear need to promote clean development that innovatively addresses potential negative impacts on the environment. To prevent future environmental disasters, all sectors could also do more to integrate environmental emergency preparedness and response activities into strategies and sustainable development programs. These measures could make a big difference in people's health and well-being, and avoid future tragedies.

The first and foremost step that needs to be taken to prevent a disaster of such a magnitude in the future is that during the signing of the Memorandum of Understanding between the Company and the Government, it should be made clear to the company concerned that in case any mishap occurs then the responsibility will be bared by the company concerned if there is any security lapse on their part and it should also be made clear that in case an incident does occur then the company should pay at least half

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of the compensation to the aggrieved people and the govt. with which they signed the memorandum of understanding.

This was clearly violated in the case of Carbide Company paid a meager amount of compensation for the disaster that ensued.

place in hospital. And the second step that needs to be taken is that many people did not get even that small amount of money. The third step that needs to be taken is that the Company sent the money to the Govt. The fourth step that needs to be taken is that the victim should not be asked to provide evidence to get his compensation. This means that the tort law should not be used where the victim has taken is that the victim should not be asked to provide evidence for getting compensation.

Clearly this... high time we changed this law so that the negligence... and they don't have to face harscile. Infact this point has been raised when in 1986 in Sriram Industries case where there was an oleum leak in Delhi which led to the death of 1 person, the Supreme Court pronounced a judgment where this point was one of landmark points in the case. The third step towards ensuring that such an incident doesn't take place again is that if the local people notice and report something unusual happening near the factory site then the Govt. should take this seriously and take necessary action accordingly. This again was violated during the Bhopal Gas Tragedy before this mega disaster took place the locals had reported that they witnessed two or three times earlier as well but on a much smaller scale. So clearly it was a problem in the way the plant was set up and had the govt. taken the reports seriously the incident could have been avoided but that was not the case. So the point is if the locals report any inst

brings up the next point, which is that the plant should not be opened until the certificate issued to the plant before it is started and in the event of an investigation being made, the plant will not be opened.

The next point that has to be kept in mind is that when the plant is built at ordered into pending which the plant ...
time the locals should be informed of the escape routes possible in case a disaster takes place and it is here that the role of the newly formed Disaster Management Committee comes into play. They should work together with the company managers and then spread a awareness regarding the possible escape routes. The last but not least important point is that there should be some kind of witness protection as that even if there is political or any other kind of pressure from the company they are not forced to change their point of view leading to the escape of the culprits as happened with many cases including this one.

Hence, there are many crucial lessons to be learned from such a catastrophe. Engineers help to ensure that such steps are taken then such a massive catastrophe could be avoided in the future.

Ans. "The rationale for teaching ethics to engineers is fairly obvious. Their work (developing, designing and implementing technologies) has an enormous impact on the world". Johnson

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

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

Each of these topics relates to the interaction of an engineer to others, clients, etc., Whitbeck argues that engineers should study engineering ethics from the perspective of a moral agent as opposed to a moral judge. He fails, however, to show in other areas of professional responsibility, but also for teaching and presenting topic separate from engineering, it is part of the essence of engineering as it pertains to NSF sponsored workshop on engineering design ethics in the classroom. I believe that problems, designs, and interactions One may consider numerous engineering design elements in the "engineering design core".

- Design Specification (specifying the needs)
- Concept Design

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

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

the process of devising a custom assessment instrument.

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

ABET's definition of design involves engineering activities which include open-ended problems. These activities include machine design, product and process engineering, manufacturing engineering, and applications engineering. This broad definition of design includes most of engineering activities involving societal interaction due to their interactions with society. Engineers assume the responsibility inherent in

such interactions. ABET's definition acknowledges the relationship of engineering to society in the recognition of "realistic constraints" in the design process (meaning that "design is the essence of engineering in society"). Yet engineers frequently give little attention to the codes which guide their interaction with society. Skooglund (1996) proposed that professional ethics describe "how we agree to relate to one another". This proposed definition of professional ethics can be useful in examining how engineers view the codes.

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

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

National Development refers to the ability of a country to improve the social welfare of the people by providing social amenities like good education, infrastructure, medical care and social services.

1. The role of engineer in national development

The role of Engineer in national development refers to the application of knowledge of the mathematical and natural sciences, gained by study, experience, practice in the provision of social amenities like good education, infrastructure, medical care and social services.

2. Specific aspects of national development in which engineers play a vital role

Educational Growth: Engineers play the role of guidance and counsellors at tender age at secondary school level in taking decision on the choice of career by sensitizing them towards the technical and engineering courses.

Engineers in tertiary institution in Polytechnic and Universities prepare the undergraduate by taking them through the practical knowledge of their different fields of engineering thereby impacting upon them from their wealth of knowledge and experience.

Engineers inculcate in the undergraduates the need for entrepreneurial skills for sustainable development rather than seeking and indulging in the get rich quick practices.

3. Community Development:

The Engineer deals with the creation, improvement, and transportation, including large buildings, providing facilities for living, industry and other engineered constructions within a given community.

4. Community Engineering:

Like community Policing, community engineering plays a very important role in the monitoring of infrastructural development projects within the neighbourhood with a view to ensuring adherence to standards and ethics of engineering practice. Engineers within a community come together as volunteers to sponsor infrastructural development projects like boreholes, water distribution network, construction of drainages, culverts etc.

5. Incorporation of Engineering Companies:

The coming together of Engineers to incorporate Engineering firms has come a long way in fostering National development situations where Engineering firms are family biased where probably the principal partner is the only Engineer and his demise means the folding up of the company.

6. Engineers and Politics:

Decision making for National Development is made at the highest level of Government. Involvement of Engineers in politics affords them the opportunity to be at these policy/decision making bodies. Engineers at these levels, use their professional knowledge to attract and defend important engineering infrastructural development projects. Similarly, Engineers in politics contribute to the enhancement of the welfare of other. Engineers thereby motivating them to higher productivity for national development.

7. Engineers in Public Service:

Most of the Engineering Development Projects are being conceptualized, designed, supervised, evaluated and certified by the Engineers in the Public Service. These Engineers also ensure that these projects are executed according to specifications. They also make necessary input towards the procurement of Engineering Project.

Q.4. Explain the Professional Ethics of an Engineer during his professional involvement with the other engineers with examples.

Ans. *Engineering Ethics is the set of rules and guidelines that engineers adhere to as a moral obligation to their profession and to the world. Engineering is a professional career that impact lives. When ethics is not followed, disaster often occurs, these disasters not only include huge monetary costs and environmental impacts, but also often result in the loss of human life. Engineering Ethics applies to every engineer and is very important.*

The National Society of Professional Engineers (NSPE) decides the overall standards and codes of ethics for all the engineering professions. The Preamble of the NSPE *Code of Conduct for Engineers* (2007) states:

"Engineers shall at all times recognize that their primary obligation is to protect the safety, health, property, and welfare of the public. If their professional judgment is overruled under circumstances where the safety, health, property, or welfare of the public are endangered, they shall notify their employer or client and such other authority as may be appropriate."

This means that engineers should always be aware that their safety and the safety of those around them comes before anything, including any engineering projects they

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8-2018

Electrical Engineering Ethics: Electrical Engineering is a type of engineering profession that deals with the creation of better electronics. Since our society is heading towards an era of technology, where all members of society will be affected, it is especially important for electrical engineers to follow a code of engineering ethics. For electrical engineers, an important set of guidelines is the *Electrical Engineering Code of Ethics*, published by IEEE (n.d.), the major professional association for engineers working in the fields of electrical, electronics, computer engineering, and communications. The Code emphasizes above all else honesty and avoidance of endangerment to the public or the environment.

Problem Solving in Engineering Ethics: Every engineer will find himself in a conflicting position. For example, consider the case of a biomedical engineer engineering a potentially working artificial kidney. When he was on the clinical trial phase, he needs to decide whether to proceed with testing on humans. If he proceeds, and the device fails, a human test subject could die. If he succeeds, he will be saving the lives of thousands of people who need kidneys in the future. Although he is in a touch predicament, he can make his decision better by using the steps of problem solving in engineering ethics to help him make the best decision. The steps of Problem Solving in Engineering Ethics are (Johanssen, 2009):

State the Problem: Clearly define what the ethical engineering problem is.

Get the Facts: Obtain all relevant facts to the matter (i.e. the different moral view point(s) and then analyze them all).

Identify and Defend Competing Moral Viewpoints: Analyze the pro and cons of different moral viewpoints and pick the best course of action.

Come up with a Course of Action: Pick the best course of actions, and answer all un-answered questions.

Qualify the course of Action: Back up the course of action with facts or statistics. In the scenario above, the biomedical engineer can first state the problem, which is whether or not to proceed with testing knowing that he could save the lives of thousands, or else kill the test subjects. He can then gather all the facts about the test subjects, the device he made, and the different moral viewpoints from others. He can then make a pros and cons list of all the moral viewpoints. From this he must pick the best action to take and be prepared to defend it.

Reasons why Engineers Stray from the Code of Ethics

The first reason is because they are overconfident in their work, which in turn causes them to neglect things that might be wrong with it. They may overlook small mistakes or remain stubborn about their beliefs because they think highly of their education level. However, in engineering, these small mistakes might be the very thing that causes a disaster (e.g. the Challenger and O-rings). Another reason why Engineers stray in the world, so they send it out before it's ready. Sometimes it is not even their fault, but the fault of their authority figures (i.e. boss or managers). Their authority figures do not have room and give them a short, deadline to work on the project. Impatience does not allow room for iterations of the processes involved in design, testing, and implementa-

a product or project. Iterations are often needed to increase confidence that the product will work and that, more importantly, it will work safely.

Thus, it is recommended that engineers check their work at least twice and even have others check their work no matter how little time they have left, or no matter how excited they are about submitting the project. If they know they have a short deadline, they can either manage their time better to have room for several revisions or ask their boss for an extension. Engineers should also try to be open to other ideas and admit that they could be wrong.

Applications of Engineering Ethics

Engineering Ethics in College/Education

The main engineering ethics problem that college students are face with is academic integrity. Academic integrity can show itself in the form of cheating by copying someone's work, intentional cheating, plagiarism, and/or self-plagiarism.

However, professional ethics is something that can be learned even when it conflicts with personal ethics, as for example, a situation where you are personally okay with building a product that can harm the environment, yet save lives. You can learn professional ethics and realize that something that is harmful to the environment is not okay. Ethics codes can even help you see the bigger picture. For example, in the previous scenario, those codes can help you re-evaluate your ethics and realize that something that is harmful to the environment will eventually be harmful to the people around you and yourself.

Engineering Ethics in the Professional World

In the professional world, ethical engineering problems come up in many cases. One of these includes the case of a professional using someone else's work that is published in the widespread market of publication. Another is the case of a professional using someone else's work that is not published yet and stealing their idea. Engineers who have good engineering ethics often have a good sense of the value of life. They don't hesitate to admit that they made a mistake because they know that the cost of not owning up to your mistakes can have disastrous consequences. It might even cost a human life.

Engineering Ethics in Companies

Not only do individual engineers have to be conscious of engineering ethics, but also companies. Companies have to be aware of their Corporate Social Responsibility and Environmental Responsibility. Corporate Social Responsibility is a company's responsibility to give back to the community that they profit from and to behave ethically so that both they and their community can benefit. Environmental Responsibility is a business's initiative to leave the environment (where it is taking its resources from) the same, if not better, than it is found it.

Engineering Ethics applied to Senior Design Project

Thus, as seniors in college, we are making the transition from an academic environment to a professional environment. The further we are in our career path, the more important ethics is, especially engineering ethics. Thus, the soon we start defining our ethics the better, beginning with our final project in college and the first design project of our lives: our Senior Design Project.

END TERM EXAMINATION [MAY-JUNE 2018]

EIGHTH SEMESTER [B.TECH]

HUMAN VALUES AND PROFESSIONAL ETHICS-II

[ETHS-402]

MLM : 75

Time : 3 hrs.

Note: Attempt all questions as directed. Internal choice is indicated.

Note:

Attempt

all

questions

as

directed.

Internal

choice

is

indicated.

individual. He is very careful in behaving with his elders, parents, teachers, acharyas, sisters, brothers, friends, relatives and the saintly and studying the scriptures very carefully, and then treads the path of dharma.

Q.1. (d) Accountability

Ans. In ethics and governance, accountability is an answerability, blameworthiness, liability, and the expectation of account-giving. As an aspect of governance, it has been central to discussions related to problems in leadership roles, accountability is the (corporate) and individual assumption of responsibility, and implementation within the scope (corporate) and administration, governance, and acknowledgment of the obligation to report, explain policies, including the administration position and encompassing the resulting consequences.

In governance, accountability has expanded beyond the basic definition of "being called to account for one's actions". It is frequently described as an account-giving relationship between individuals, e.g. "A is accountable to B when A is obliged to inform B about A's (past or future) actions and decisions, to justify them, and to suffer punishment in the case of eventual misconduct". Accountability cannot exist without proper accounting practices; in other words, an absence of accounting means an absence of accountability.

Accountability is an element of a RACI to indicate who is ultimately answerable for the correct and thorough completion of the deliverable or task, and the one who delegates the work to those responsible.

Q.1. (e) Safety and Risk.

Ans. Safety is the freedom from risk. If you want to increase safety, you must first consider risk. Risk is the "probability or threat of damage, injury, liability or loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided by preemptive action." Note that risk can be avoided by pre-emptive action. Herein lies the message we want to make sure all drivers understand. Behavior modification can increase safety. This is due to the fact that safety and risk have an inverse relationship. When one goes up, the other goes down. To increase safety, you need to decrease risk.

Risk



Q.1. (f) Loyalty.

Ans. Loyalty is a noble quality that is found not only in human beings, but also in pet animals, such as dogs, horses or elephants. The word 'Loyalty' means 'Fidelity to law' which is generally applicable in the case of the Sovereign of the State. But in its broader sense, it means one's steadfastness in allegiance to a person or cause, or to one's country or sovereign. Loyalty involves obedience, sacrifice and compassion of the heart.

Loyalty is a very broad term which may be applicable in case of one's family, locality or the country. A loyal person is ready to sacrifice even his own life for the sake of his master, friend, relative or the country. A loyal person bears a moral character, honest outlook, and disciplined manners.

A truly loyal man cannot be bribed or tempted to deviate from his own path. He is like a stone pillar which is firm and strong to stand any force that may try to penetrate through it. He is absolutely dependable in all circumstances of life.

In this world, there are only a few instances of loyal personalities, who are well-known. In those days, some of the kings and emperors were lucky to have certain loyal commanders who fought for their kingdom and saved their masters again and again from the hands of the enemies, even at the cost of their own lives.

Loyalty is common among the courageous soldiers and servants. There are also instances of pet animals, such as dogs, horses or elephants, who, out of loyalty, gave their lives for the interest of their masters.

Loyalty is a quality which is found mainly among the brave and the bold characters. Meek and weak persons are mostly found lacking in the spirit of loyalty. Loyal people can become great leaders, great commanders, or great administrators in life. Disloyal persons are hated and disbelieved by all. He is a curse to his people, to his society and to his country. He must be exposed and brought to task, as and when detected.

Loyalty forms the basis of human character, builds up the foundation of a free country, and demands all law-abiding citizens to be loyal and patriotic.

Safety



Risk



Since safety is directly related to risk, drivers must understand and be aware of factors that affect risk. A variety of factors govern risk. The key difference is control. Drivers can control some but not all risk factors. For example, controllable risk factors include driver behavior and the condition of the driver's vehicle. Uncontrollable risk factors include other drivers' behavior and the weather. So, how can drivers increase safety when they cannot control all the risk factors? The answer: Drivers must modify their own behavior, which is controllable, to compensate for uncontrollable risk factors. This requires awareness of risk factors and a willingness to modify their own actions. The more uncontrollable risks a driver faces in any given situation, the more the driver should modify his/her behavior.

- Of "T" = Happiness (Sukha)

One of these cannot replace the other.

Q.1. (Q) Truth. Truth is most often used to mean being in accord with fact or reality, or fidelity to an original or standard. Truth may also often be used in modern contexts to refer to an idea of "truth to self", or authenticity.

Truth is usually held to be opposite to falsehood, which, correspondingly, can also take on a logical, factual, or ethical meaning. The concept of truth is discussed and debated in several contexts, including philosophy, art, religion, and science. Many human activities depend upon the concept, where its nature as a concept is assumed rather than being a subject of discussion; these include most of the sciences, law, journalism, and everyday life. Some philosophers view the concept of truth as basic, and unable to be explained in any terms that are more easily understood than the concept of truth itself. Commonly truth is viewed as the correspondence theory of truth.

Various theories and views of truth continue to be debated among scholars, philosophers, and theologians. Language and words are a means by which humans convey information to one another and the method used to determine what is a "truth" constitutes truth: what things are truthbearers capable of being true or false; how to define, identify, and distinguish truth; the roles that faith-based and empirically based knowledge play; and whether truth is subjective or objective, relative or absolute.

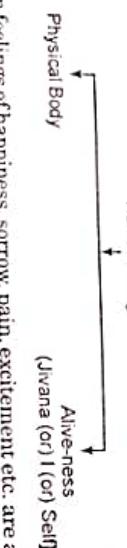
Q.2. Explain the term "pluralism in India".

(12.5)
Ans. Refer Q.1(b) of First Term 2018.

OR

Q.2. Human Being is existence co-existence of self and body, explain.(12.5)

Ans. Human being is more than just a Body. He is a co-existence of both the Self (Jivana) and the Body. There is an exchange of information between the two. Our body acts according to the suggestions given by our "Jivana".

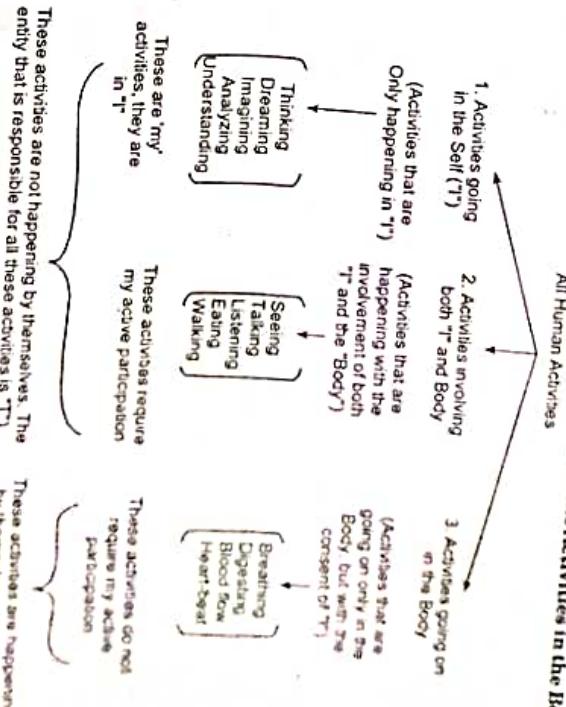


All the human feelings of happiness, sorrow, pain, excitement etc. are all experienced by "I" and not the "Body".

Needs are...	I Trust, Respect..	BODY Food, Clothing ...
In terms of Time, needs are ...	Happiness (Sukhi) Continuous	Physical Activities (Suvidha) Temporary
In terms of Quantity, needs are...	Qualitative (no quantity)	Quantitative (limited in quantity)
Needs are fulfilled by...	Right Understanding and Right Feelings Desiring, thinking, etc.	Food, clothing etc. Breathing, heart-beat etc.
Activities	Activities are ...	Knowing, assuming, recognizing, fulfilling Conscious (non-material) Physico-chemical (material)
Type	It is of Type ...	

Having Physical Facilities ensures the fulfillment of the needs of the body, but it does not fulfill the needs of the "I".

- Hence, for every human being, we need to fulfill the needs of both:
- Of "T" = Happiness (Sukha)
 - Of "Body" = Physical Facilities (Suvidha)
- One of these cannot replace the other.
- Understanding the Activities in the Self and the Activities in the Body:**
- All Human Activities



These are my activities, they are in "I"

These activities require my active participation

1. Activities going in the Self ("I") both "T" and Body
2. Activities involving in the Body
3. Activities going on in the Body

These activities are not happening by themselves. The entity that is responsible for all these activities is "T".

These activities do not require my active participation

These activities are happening by themselves, but with my consent, I don't need to pay particular attention to those activities for them to have place

All human activities can be put under three categories -

- Activities that are going on in the Self (**Sentient Activities**)
- Activities that are going on in the Body (**Material Activities**)
- Activities involving both the Self and the Body,

Bodily functions / Activities in the Body:

- The body is a set of "Self-organized activities" that occur with my (I) consent but without my(I) participation.
- e.g.: the functions like breathing, digestion, organ functions

However some of these activities can be stopped by me (I) if I want e.g.: breathing

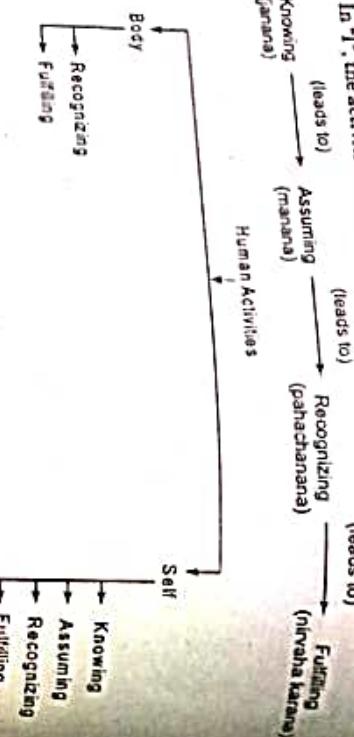
- The activities in the body can also be understood as the mutual interaction between two material entities for "recognition" and "fulfillment" of their relationship e.g.: "Body" recognizes its relation with "Water" and fulfills it (by absorbing the water we drink, to the extent needed and uses it for the nourishment of various organs)

Recognizing (Pahachana) —————> Fulfilling (Nirvaha karan)

(leads to)

Activities in the Self / Jivana: Since "Jivana" is a conscious entity, in addition to "recognizing" and "fulfilling", it also carries out activities of "assuming" and "knowing".

"Knowing" and "fulfilling", it also carries out activities in the following order:



"Knowing" means we have the "Right Understanding". As a result of "Knowing", we understand the reality. When we lack "Right Understanding", the faculty of "knowing" is dormant; and we only operate on the basis of assumptions. Wrong assumptions lead to wrong Recognition and wrong Fulfillment.

Examples of Activities of the Body Vs Activities of the Self:

Example 1: Activity of the Body: If a needle is pricked into your body, the needle goes inside if it is sharp and does not go inside if it is blunt.

Activity of the Self: If you (I) see the needle being pricked into your body, you oppose it because you that it is a needle and you assume that it is sharp. Your "Recognition" of this fact makes you avoid it (Fulfillment of your Recognition). But if you "know" that it is a syringe with a needle, then you assume that it will cure you of your sickness. Then this "Recognition" makes you allow the needle to be pricked into your body (Fulfillment of your Recognition). Thus this different Recognition lead to a different fulfillment.

Example 2: If you see a snake and assume it to be a rope or vice-versa, then these different assumptions will lead to different recognitions and different fulfillments.

Understanding the Body as an Instrument of "I":

("I" being the Seer, Doer and Enjoyer)

1. "I" am. The "Body" is.

* "I" knows I exist. I am a conscious/sentient entity.

* The "Body" doesn't know. It is a material entity.

2. "I" want to live. The "Body" is my instrument.

* "I" and my "Body" co-exist with each other.

* "I" takes decisions and the "Body" acts accordingly.

3. "I" want to live in Continuous Happiness. For my happiness, the Body needs Physical Facilities.

* For the "I" to enjoy the feelings of Strength and Health, my body needs food

* To get the feeling of protection, my body needs clothing and shelter.

* To utilize my Body (Right Utilization of the body), I need various instruments, equipments etc. With the help of these, my body can make me feel happy.

4. My ("I") program for Continuous Happiness is to understand and to live in harmony at all the four levels. To fulfil my ("I") program of achieving Continuous Happiness, the Body is provided with Physical Facilities.

- Ensuring Physical Facilities to the body consists of Production, Protection and Right Utilization.

Example: Producing Wheat, Protecting the wheat from extreme climate and pests, Right Utilization through proper consumption like avoiding wastage etc.

* Today, we have ignored the "I", we know only of the existence of the "Body" and we are only aiming at having more and more Physical Facilities. These facilities do not ensure good health, happiness or the right understanding in "I". Hence we should all pay urgent attention to include the program for "I".

- 5. I am the Seer, I am the Doer and I am the Enjoyer.

* I am the Seer

Behind all our activities of our Seeing, Understanding, Doing and Enjoying is a

feeling of "I-ness" with which we identify ourselves. Every human being actually participates in a number of such activities everyday. In all these activities, the body acts only as an instrument. It is the "I" that sees or understands something.

For e.g.: Our eyes and ears act as instruments which help us to see or listen anything. They do not convey any information. It is the "I" that understands what it has seen or listened to.

- * "Seer" also means the one who understands.

Hence I am the Seer (Drasta).

Q.1: I have seen and understood something. I decide what I should/ should not do I take the help of my body parts to accomplish the task I want to do

For e.g.: I use my hands to write, my legs to walk etc. My body works as per the instructions given by me. Hence I am the Doer and I express my actions via my body.

Doer means "one who does" or "the one who takes decisions to do something". Hence I am the Doer (Karta).

- * I am the Enjoyer:

I use my body as an instrument to perform various activities. It is I who enjoy the pleasure derived out of those activities.

For e.g.: mouth helps to chew and the tongue to taste, but I enjoy the taste and flavour. I am the one feeling excited, angry, sad, happy etc. my body is only one instrument.

Enjoyer means "one who enjoys".

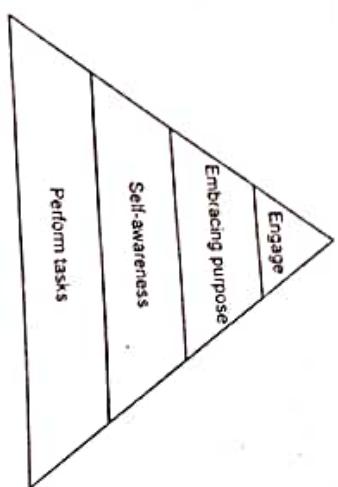
Hence I am the Enjoyer (Bhokta).

Q.3. Describe the four different levels of our living in harmony. (12.5)

Ans. Living my purpose has been on my mind a lot lately. I think it comes with the idea of retirement, and other times where we make a major change in the rhythms of our life. I know that living a life of purpose is what will provide me the richness I crave in life. What has elevated this topic in my thoughts is my current situation. I'm semi-retired and I'm on vacation. At the end of three weeks I go back to work, but what happens when I'm fully retired? What will that feel like?

I've used this trip as an opportunity to think about how I engage with my purpose. I've been curious about how I choose to spend my time when there are few other demands on it – other than the pleasant demands of my wife.

The exercise has been a good one. As the days of our trip have passed, a few things have become clearer for me with regard to the patterns and levels of how I live into my purpose. My first discovery is that I don't want to live into my purpose each waking moment of the day. I have a need for downtime and entertainment as well.



But when in a mindset of being purposeful, there seems to me to be four levels which I find myself.

Performing tasks: This is the basic level of engagement – the stuff of to-do lists which we know we have to do to support our purpose. We can't actually live our purpose if we aren't willing to do any work to make it happen. My list contains things like networking, building a website, developing materials, etc. It isn't always exciting stuff, but it has to be done.

Tasks feel familiar. If we don't pause to think about what we are doing, we might find ourselves feeling good about just being productive. Then, at the end of a day, crossing things off the to-do list we realize that we haven't moved the needle on engaging our purpose like we want.

I am loathe to put learning on this list as it is critical to personal growth, but I think I have to. Knowledge, without actively applying it, doesn't move us forward. Learning can be as distracting as doing tactical things.

It is worthwhile to ask myself before starting any task as to whether it is necessary right now to support my journey to actively living my purpose.

Self-awareness: If I am successful in managing my attraction to tasks and the associated feelings of accomplishment, then I can turn my attention to my level of self-awareness and self-care.

There is often a constant stream of demands from outside of us. Once again, it can feel both good and familiar to turn our attention to these demands, most of which are not aligned with our sense of purpose. By cultivating a state of self-awareness and presence, where I am able to see myself as separate from, but sharply aware of, the needs and wants of others then I'm able to make the best choice on how to serve my purpose at that time. For example, as a leader of people at work I may be asked how to do something by a team member. If I know the answer, it would be easy just to do it for them. However, by practicing presence I may see another choice – to coach that person through how doing it on their own. The latter approach is a better fit with my purpose and probably with my role at work as well. By being self-aware of what was going on in that relationship, I gave myself a choice.

That sounds easy, but it isn't always so. I think there are two fundamental components to achieving and maintaining this state. I find my relationship with these

two components very cyclical such that when I'm struggling with living my purpose I often return here to see what might be going on.

1. Vitality for relationship: This self-aware connection with others takes emotional energy. That energy comes from nurturing our overall level of joy and happiness. One of the most powerful ways of getting there is to spend time doing things we are passionate about. Take time for your passionate pursuits both inside and outside work. Even if you feel you don't have the time, you'll be amazed how it pays off for you when you need it!

2. A state of presence: This can be a challenge, as there are many things that distract our attention from what is happening *right now*. It could be anticipation of an upcoming event; it could be rehashing a meeting or conversation that just happened or choices in the present – *right now!* There are a number of schools of thought around presence. For me, it is our ability to enter and maintain a state where we can authentically be, hear and (most importantly) feel what is happening *right now*; and be able to view

Embracing Purpose: My sense of getting to know my purpose is that it sort of "emerged" from my existing life. I was successful in my existing life, but not necessarily open to the possibility of living and leading essentially) was already there waiting. Once discovered, I felt its pull on me to fulfil it.

Uncovering it was only the start of the journey, as I then needed to fully embrace it and live it. While we may not be rewarded by our existing life, we know how to "be" in that life. We're much less certain about our new life revolving around purpose and therefore find ourselves in a state of transition where it is important to focus on letting go of the old. I won't go into the whole approach here – if you are interested please read previous post: Four Steps To Make Transitions Easier. This to me might be the most critical level of them all. My sense is once we move on from the "old world" it is gone! **Engage:** This is the fun part! This is what we were hoping for when we defined our purpose. The ability to live and work in a way that is completely fulfilling to us. We've done the required tasks, we are present in our pursuit of it and we have released the grip on our old way of being such that we have arrived here. Now it is up to us to be deliberate about our action, both what we do and what we don't do. We will find a tan of grace and scope here when we are ready for it.

As always, there will be many other factors at play that make it a bit more difficult. Economics, family, commitment, etc. For example, I'm in the midst of this right now as I am in France, and have a language barrier with almost everyone I meet. No matter how prepared I am, it is difficult for me to fully engage in my purpose when I don't have enough command of the language.

But to know that I am ready to engage, to continue to try to engage and even to fail at engaging can be rewarding! Passing through these levels can be cyclical, so knowing of these levels and tendencies will be important for me to live into my purpose long term.

OR

Q.3. Be it television, magazines, or the Internet, media is omnipresent feeling various aspects of our lives. Describe the negative effects of such media on children and the society as a whole. (12.5)

Ans. Millions of dollars are spent every year by the advertising industry on ads targeted at children. Young audiences are bombarded with persuading messages through media such as the Internet, television, magazines, billboards, radio, etc. According to research, an average child is exposed to over 40,000 commercials through TV every year. One study even alleges that in the U.S., children are spending

more time watching TV than they are in school, meaning that they are viewing more advertisements.

For decades, a part of the free market form of society has been advertised to children and it must be comprised as another part of a complex engine of the economy that works tirelessly to give everyone a better lifestyle. Advertising to children helps in generating jobs, putting money into the economy and instilling the importance of the freedom to choose at a young age. It also helps in developing a child's ability to comprehend the value of money and teaches them that a person can achieve anything if they have the will to pay the price.

Television Advertising to Children

As far as advertising goes, the biggest impact made on children is through television. According to a recent study, children spend about 4.5 hours every day watching TV. This means that they are bombarded with advertisements daily and the truth is that even the top researchers know how they may be being influenced by these ads. How children react to them depends on a number of factors including their age, what they have experienced or know and how much opportunity they have had to ask questions and discuss what they see in the media.

Research suggests that when children watch more television, they are likely to want and demand more toys or other products. It is also suggested that they may ads more when they watch television on their own. According to a national survey, children's TV-watching behavior in 2010, 72 percent reported that they had no freedom to watch any type of content they wanted.

Studies have found that children do not have the ability to skeptically marketing messages or even identify advertisements as marketing messages until they are in their teens. This means that marketing messages can be perceived as truths, and in many cases, those messages can stay with them until they become adults.

New research has shown that when companies advertise to children using characters or mascots, the brand becomes a loved one and the feeling that the product is healthy and wholesome can stick right to adulthood. This is despite the fact that the product is neither healthy nor wholesome. This is known to even apply to "line extensions", which are new versions of the product that are launched by the same brand. That advertising can have lingering effects that hamper an adult's ability to change their opinions of brands that are not healthy because they loved them as children.

Advertising and Alcohol and Tobacco Consumption among Children

Over the years, there have been a lot of research on alcohol and cigarette advertising and their effect on children. More recently, there have been more subtle marketing strategies with the placement of certain products in films and TV shows. Studies show that advertisements can push unhealthy behaviors in children and adolescents. They show that it is becoming increasingly difficult to protect them as companies market their products by exploiting the Internet and social media.

According to experts, the odds of underage drinking are increased by advertisement.

A recent study showed that exposure to alcohol advertising is linked to an increase in adolescent alcohol use and this in turn is associated with higher levels of problems such as alcohol drinking and getting intoxicated, getting into fights and missing school. Through alcohol advertising, adolescents are being sold a commodity that they do not consume in any amount.

Food Advertising And Children: According to research, children and teenagers in U.S. see an average of 12 to 14 food advertisements on television every day. Experts say that TV advertising plays a very important role in how foods are marketed to children. However, parents may not realize that advertising messages are also relayed to children from other directions.

Advertisers have reward programs on their websites and they are also advertising on other websites and social media such as Facebook, Twitter, mobile apps and more. There is a huge number of ways that children are exposed to advertising. As they become increasingly tech-savvy, advertisers find better ways to get their messages across to young minds. For instance, there are "Advergamer" that can be played online which are used to promote products.

So what is being marketed to children? According to experts, the top four products studies on childhood obesity and its connection to screen time have shown that exposing a preschooler to a novel or new product for even just 30 seconds can change their preference for a brand. In another study, the effects of branding were looked at and 3 to 5 year olds were given two portions of identical foods. One portion was given in McDonald's wrappers. When asked to point out which foods tasted better, the children said that the ones with the McDonald's wrappers were better.

Fast or junk foods are one of the most commonly seen ads on television with pizzas, burgers and other delicious-looking foods being shown on screens every few minutes. Children see fit-looking adults munching on various junk foods and assume that they are healthy as they do not understand the concept of advertising. Research has found that consumption of fast foods has increased among children due to these ads. In fact, they have been so influenced by them that consumption of these unhealthy foods and snacks has almost doubled.

The rising popularity of fast foods and snacks has led to an increase of obesity, heart problems, diabetes and other serious health issues among children. This is a major problem, especially in developing countries where advertisers are targeting young children and teenagers. As mentioned, young, healthy-looking models are used, hiding the fact that these foods are some of the unhealthiest in the world. With so many such ads, bombarding television screens and children, it is time to start addressing the issue.

Negative Impact Of Advertisements On Children:

Although there are some positive effects of advertising on children, the fact is that advertising can also have many negative effects on young minds, especially if parents are not careful and do not teach their children that money is important. In many cases, the messages in the ads are misinterpreted and it results in children having the wrong beliefs about a large number of issues. Advertising influences their minds, creating a need for them to own the product they see. Flashy ads on TV, magazines, the Internet and other forms of media only generate impulse buying.

Parents who are unable to deal with increasing demands or temper tantrums have a tendency to give in to their children's demands. This result in children getting used to the kind of lifestyle that is shown on television and other media forms. This creates the wrong impression on young minds that they will not be able to live a life that does not come with certain material things. Thus, it is certainly true that the power of advertising effects on children is one that cannot be ignored easily.

Some of the negative effects of advertising on children include:

- Advertisements encourage children to their parents to buy the products they see in commercials, regardless of whether they need them or not and whether they are useful or not. Many throw tantrums and use different tactics to force the adults to get them what they want.
- As mentioned earlier, children are likely to misinterpret the messages that are conveyed in commercials. Studies have shown that they also tend to focus on the negatives rather than the positive side of the messages.
- Flashy commercials and ads on TV, the Internet, magazines, etc. create a tendency for impulse shopping.

- Children tend to get attracted to high-end brands that advertise clothes and other products and disregard lesser-known ones that are not seen in ads.
- Many advertisements seen today involve dangerous stunts which children imitate as they do not understand the statutory warnings that come with the ads.
- With so many attractive commercials, marketing junk foods and unhealthy beverages, children's health has led to an increase in obesity, diabetes, heart problems, eating, which in turn has led to other conditions in young children.

- Child advertising may impact self-esteem, making them feel inferior to others in many cases.
- With more commercials targeting children, reality and fantasy do not seem different. This can cause a lot of confusion among children, distorting their reality.
- Sexually suggestive ads are everywhere these days. This makes children, women and also allows them to think that looking or acting a certain way is the way to make friends or be popular. These ads also make young girl's body conscious in many cases, can cause eating disorders like bulimia, anorexia, etc.
- With more commercials targeting children, reality and fantasy do not seem different. This can cause a lot of confusion among children, distorting their reality.

Increasing Efforts: According to experts who have been studying the advertising on children, psychologists can help parents and their children gain better understanding of these advertisements. Psychologists can help in mounting public-information campaigns that parents, teachers and legislators can have a better understanding of these changes.

In the past few decades, advertising has gone through tremendous changes that has increasingly targeted younger audiences. One such change is the use of the Internet to reach children in subtle ways, including through the games they play. In many cases, users are not even aware of the effort and undertaking of advertisers and marketers. Highly sophisticated advertising methods are used to reach children. However, experts say that there is virtually no research on how Internet interactivity is used to reach these younger audiences.

There are an increasing number of parents who support the use of psychology to find out the effects of advertising on children and curbing them. No doubt parents concerned about how advertisements are affecting their children. Their children see unreasonable demands due to the ads they see – new toys and unhealthy food they should be avoiding. These situations are extremely difficult for them to handle. There is a material shift that is happening in society and this shift is having a major impact and an enormous influence, which are psychological in nature, on the behavior of children. This requires the attention of psychologists as they may be the most effective way to show the true nature of advertisements for children and their effects and see a whole.

Q.4. The term globalization refers to the process of escalation of connectivity and the interdependence of the world markets and business Explain.

Ans. Globalization or globalisation is the process of interaction and integration between people, companies, and governments worldwide. Globalization has given rise to advances in transportation and communication technology. With increased

interactions comes the growth of international trade, ideas, and culture. Globalization is primarily an economic process of interaction and integration that's associated with social and cultural aspects. However conflicts and diplomacy are also large parts of the history of globalization, and modern globalization.

Economically, globalization involves goods and services, and the economic resources of capital, technology, and data. The steam locomotive, steamship, jet engine, and container ships are some of the advances in the means of transport while the rise of the telegraph and its modern offspring, the Internet and mobile phones, have been major factors in globalization and have generated further interdependence of economic and cultural activities around the globe.

Though many scholars place the origins of globalization in modern times, others trace its history long before the European Age of Discovery and voyages to the New World, some even to the third millennium BC. Large-scale globalization began in the 1820s. In the late 19th century and early 20th century, the connectivity of the world's economies and cultures grew very quickly. The term *globalization* is recent, only establishing its current meaning in the 1970s.

In 2000, the International Monetary Fund (IMF) identified four basic aspects of globalization: trade and transactions, capital and investment movements, migration, and movement of people, and the dissemination of knowledge. Further, environmental challenges such as global warming, cross-boundary water, air pollution, and overfishing of the ocean are linked with globalization. Globalizing processes affect and are affected by business and work organization, economics, socio-cultural resources, and the natural environment. Academic literature commonly subdivides globalization into three major areas: economic globalization, cultural globalization, and political globalization.

Economic globalization is the increasing economic interdependence of national economies across the world through a rapid increase in cross-border movement of goods, services, technology, and capital. Whereas the globalization of business is measured around the diminution of international trade regulations as well as tariffs, taxes, and other impediments that suppresses global trade, economic globalization is the process of increasing economic integration between countries, leading to the emergence of a global marketplace or a single world market. Depending on the paradigm, economic globalization can be viewed as either a positive or a negative phenomenon. Economic globalization comprises: Globalization of production, which refers to the alteration of goods and services from a particular source from different locations around the globe to benefit from difference in cost and quality. Likewise, it also comprises globalization of markets, which is defined as the union of different and separate markets into a massive global marketplace. Economic globalization also includes competition, technology, and corporations and industries.

Current globalization trends can be largely accounted for by developed economies integrating with less developed economies by means of foreign direct investment, the reduction of trade barriers as well as other economic reforms, and, in many cases, immigration.

International standards have made trade in goods and services more efficient. An example of such standard is the intermodal container. Containerization dramatically reduced transport of its costs, supported the post-war boom in international trade, and was a major element in globalization. International Organization for Standardization is an international standard-setting body composed of representatives from various national standards organizations.

A multinational corporation or worldwide enterprise is an organization that creates or controls production of goods or services in one or more countries other than their

home country. It can also be referred on an international corporation, a transnational corporation, or a stateless corporation.

A free-trade area is the region encompassing a trade bloc whose member countries have signed a free-trade agreement (FTA). Such agreements involve cooperation between at least two countries to reduce trade barriers. If people are also free to move between the countries, in addition to a free-trade area in the world is the European Union, a political-economic union of 28 member states that are primarily located in Europe. The EU has developed European Single Market through a standardized system of laws that apply in all member states. EU policies aim to ensure the free movement of people, goods, services, and capital within the internal market. Trade facilitation looks at how procedures and controls governing the movement of goods across national borders can be improved to reduce associated cost burdens and maximize efficiency while safeguarding legitimate regulatory objectives.

Global trade in services is also significant. For example, in India, business process outsourcing has been described as the "primary engine of GDP growth, employment growth, over the next few decades, contributing broadly to GDP growth, employment growth, and poverty alleviation".

William L. Robinson's theoretical approach to globalization is a critique of Wallerstein's World Systems Theory. He believes that the global capital experienced today is due to a new and distinct form of globalization which began in the 1980s. Robinson argues not only are economic activities expanded across national boundaries but also there is a transnational fragmentation of these activities. One important aspect of Robinson's globalization theory is that production of goods are increasingly global. This means that one pair of shoes can be produced by six different countries, each contributing to a part of the production process.

Cultural globalization refers to the transmission of ideas, meanings, and values around the world in such a way as to extend and intensify social relations. This process is marked by the common consumption of cultures that have been diffused by the Internet, popular culture media, and international travel. This has added to processes of commodity exchange and colonization which have a longer history of carrying cultural meaning around the globe. The circulation of cultures enables individuals to participate in extended social relations that cross national and regional borders. The creation and expansion of such social relations is not merely observed on a material level. Cultural globalization involves the formation of shared norms and knowledge with which people associate their individual and collective cultural identities. It brings increasing interconnectedness among different populations and cultures.

Cross-cultural communication is a field of study that looks at how people from differing cultural backgrounds communicate, in similar and different ways among themselves, and how they endeavour to communicate across cultures. Intercultural communication is a related field of study.

Cultural diffusion is the spread of cultural items—such as ideas, styles, religious technologies, languages etc. Cultural globalization has increased cross-cultural contact, but may be accompanied by a decrease in the uniqueness of once-isolated communities. For example, sushi is available in Germany as well as Japan, but Euro-Disney outdoes the city of Paris, potentially reducing demand for "authentic" French pastry. Globalization's contribution to the alienation of individuals from their traditions may be modest compared to the impact of modernity itself, as alleged by existentialists such as Jean-Paul Sartre and Albert Camus. Globalization has expanded recreational opportunities by spreading pop culture, particularly via the Internet and satellite television.

Religions were among the earliest cultural elements to globalize, being spread by force, migration, evangelists, imperialists, and traders. Christianity, Islam, Buddhism, and more recently sects such as Mormonism are among those religions which have taken root and influenced endemic cultures in places far from their origins.

McDonald's is commonly seen as a symbol of Globalization, often called McDonaldization of global society.

Globalization has strongly influenced sports. For example, the modern Olympic Games has athletes from more than 200 nations participating in a variety of competitions. The FIFA World Cup is the most widely viewed and followed sporting event in the world, exceeding even the Olympic Games; a ninth of the entire population of the planet watched the 2006 FIFA World Cup Final.

The term globalization implies transformation. Cultural practices including traditional music can be lost or turned into a fusion of traditions. Globalization can trigger a state of emergency for the preservation of musical heritage. Arbitrarily modified, while local musicians may struggle for authenticity and to preserve local musical traditions. Globalization can lead performers to discard traditional instruments. Fusion genres can become interesting fields of analysis.

Music has an important role in economic and cultural development during globalization. Music genres such as jazz and reggae began locally and later became international phenomena. Globalization gave support to the world music phenomenon by allowing music from developing countries to reach broader audiences. Though the term "World Music" was originally intended for ethnic-specific music, globalization is now expanding its scope such that the term often includes hybrid subgenres such as "world fusion", "global fusion", "ethnic fusion", and worldbeat.

Use of chili pepper has spread from the Americas to cuisines around the world, including Thailand, Korea, China, and Italy.

Bourdieu claimed that the perception of consumption can be seen as self-identification and the formation of identity. Musically, this translates into each individual having their own musical identity based on likes and tastes. These likes and tastes are greatly influenced by culture, as this is the most basic cause for a person's wants and behavior. The concept of one's own culture is now in a period of change due to globalization. Also, globalization has increased the interdependency of political, personal, cultural, and economic factors.

A 2005 UNESCO report showed that cultural exchange is becoming more frequent from Eastern Asia, but that Western countries are still the main exporters of cultural goods. In 2002, China was the third largest exporter of cultural goods, after the UK and US. Between 1994 and 2002, both North America's and the European Union's shares of cultural exports declined while Asia's cultural exports grew to surpass North America. Related factors are the fact that Asia's population and area are several times that of North America. Americanization is related to a period of high political American clout and of significant growth of America's shops, markets and objects being brought into other countries.

Some critics of globalization argue that it harms the diversity of cultures. As a dominating country's culture is introduced into a receiving country through globalization, it can become a threat to the diversity of local culture. Some argue that globalization may ultimately lead to Westernization or Americanization of culture, where the dominating cultural concepts of economically and politically powerful Western countries spread and cause harm to local cultures.

Globalization is a diverse phenomenon which relates to a multilateral political world and to the increase of cultural objects and markets between countries. The Indian experience particularly reveals the plurality of the impact of cultural globalization.

OR

Q.4. Discuss business ethics in Corporate Governance.

(12.5)

Ans. Corporate governance lies at the heart of the way businesses are run. Often defined as the 'way' businesses are directed and controlled, it concerns the work of the board as the body which bears ultimate responsibility for the business. Governance relates to how the board is constituted and how it performs its role. It encompasses issues of board composition and structure, the board's remit and how it carried out and the framework of the board's accountability to its stakeholders. It also concerns how the board delegates authority to manage the business throughout the organization. The word 'Corporate Governance' (CG) has become a buzzword these days due to various corporate failures world over in recent past. The Corporate Governance represents the corporate failures world over and the moral framework under which business decisions are taken. In other words, when investment takes place across national borders, the investors want to be sure that not only their capital handled effectively and adds to the creation of wealth, but the business decisions are also taken in a manner which is not illegal or does not involve moral hazards. The Corporate Governance basically denotes the rule of law, transparency, accountability and protection of public interest in the management of a company's affairs in the prevailing global and competitive market milieu. It called for an enlightened investing community and strict regulatory regimes to protect the rights of the investors and companies to improve productivity and profitability without recourse to any means which would offend the moral, ethical and regulatory framework of business.

Business ethics is a kind of applied ethics. It is the application of moral or ethical norms to business. The term ethics has its origin from the Greek word "ethos", which means character or custom, the distinguishing character, sentiment, moral nature, or guiding beliefs of a person, group, or institution. Ethics is a set of principles or standards of human conduct that govern the behavior of individuals or organization. Ethics can be defined as the discipline dealing with moral duties and obligation, and explanation what is good or not good for others and for us. Ethics is the study of moral decisions that are made by us in the course of performance of our duties. Ethics is the study of characteristics of morals and it also deals with the moral choices that are made in relationship with others. Business ethics comprises the principles and standards that guide behaviour in the conduct of business. Businesses must balance their desire to maximise profits against the needs of the stakeholders. Maintaining this balance often requires tradeoffs. To address these unique aspects of businesses, rules- articulated and implicit are developed to guide the businesses to earn profits without harming individuals or society as a whole.

Advantages of Business Ethics More and more companies recognize the link between business ethics and financial performance. Companies displaying a clear commitment to ethical conduct consistently outperform companies that do not display ethical conduct.

Attracting and Retaining Talent People aspire to join organizations that have high ethical values. Companies are able to attract the best talent and an ethical company that is dedicated to taking care of its employees being equally dedicated in taking care of the organization. The ethical climate matters to the employees. Ethical organizations create an environment that is trustworthy, making employees willing to rely, take decisions and act on the decisions and actions of co-employees.

Investor Loyalty Investors are concerned about ethics, social responsibility and reputation of the company in which they invest. Investors are becoming more and more

aware that an ethical climate provides a foundation for efficiency, productivity and profits.

Customer Satisfaction Customer satisfaction is a vital factor in successful business strategy. Repeat purchases or orders and enduring relationship of mutual respect are essential for the success of the company. The name of a company should evoke trust and respect among customers for enduring success. This is achieved by a company that adopts ethical practices. When a company because of its beliefs in high ethics is perceived as such, any crisis or mishaps along the way is tolerated by the customers as a minor aberration.

Corporate Governance and Business ethics The national codes all emphasize the ethical nature of good corporate governance. Special emphasis is placed on the fact that good governance is based on a number of cardinal ethical values. Topping the list of the values that should be adhered to in good governance are the values of Transparency, accountability, responsibility and probity. These values should permeate all aspects of governance and be displayed in all actions and decisions of the board. The various aspects of governance, such as board composition and functioning reporting, disclosure and risk management, are seen as instrumental in realizing these cardinal values of good governance.

Q.5. Explain and discuss the two categories of Intellectual Property Rights(IPR).

(12.5)

Ans. Intellectual property rights are like any other property right. They allow own work or investment in a creation. These rights are outlined in Article 27 of the Universal Declaration of Human Rights, which provides for the right to benefit from the protection of moral and material interests resulting from authorship of scientific, literary or artistic productions. The importance of intellectual property was first recognized in the Paris Convention for the Protection of Industrial Property (1883) and the Berne Convention for the Protection of Literary and Artistic Works (1886). Both treaties are administered by the World Intellectual Property Organization (WIPO). Why promote and protect intellectual property? There are several compelling reasons. First, the progress and well-being of humanity rest on its capacity to create and invent new works in the areas of technology and culture. Second, the legal protection of new creations encourages the commitment of additional resources for further innovation. Third, the promotion and protection of intellectual property spurs economic growth, creates new jobs and industries, and enhances the quality and enjoyment of life. An efficient and equitable intellectual property system can help all countries to realize intellectual property's potential as a catalyst for economic development and social and cultural well-being. The intellectual property system helps strike a balance between the interests of innovators and the public interest, providing an environment in which creativity and invention can flourish, for the benefit of all.

1. Industrial Property:

Industrial Property again can be divided into two areas • One area can be distinctive signs for Trademarks (TM) that distinguish the goods or services of one enterprise or undertaking from those of other enterprises or undertakings.

Geographical Indications (GI) that identify a good originating in a place where a given characteristics of the good is essentially attributable to its geographical origin • Other areas include Patents, Industrial Designs (IDs), Trade Secrets (TS) for innovation, design and the creation of technology.

2. Copyrights and Rights related to Copyrights deals with :

- Authors' Literary works (e.g. novels, poems, plays, writings and books), Artistic works (e.g. paintings, sculptures, drawings and photographs), films, computer programs, musical compositions and architectural designs

Types & Causes of Pollution:

- Neighboring Rights include rights of performers (e.g. actors, singers and musicians), broadcasting organizations in their recordings.
- OR**

Q.5. Discuss the various kinds of pollutions in our environment with their causes. (12.5)

Ans. Environmental Pollution occurs when pollutants contaminate the surroundings, which brings about changes that affect our normal lifestyles adversely. Pollutants are the key elements or components of pollution which are generally waste materials of different forms. Pollution disturbs our ecosystem and the balance in the environment. With modernization and development in our lives pollution has reached its peak; giving rise to global warming and human illness.

Different types of Pollution: Environmental Pollution occurs in different forms, air, water, soil, radioactive, noise, heat/thermal and light. Every form of pollution has two sources of occurrence; the point and the non-point sources are hard to control, easy to identify, monitor and control, whereas the non-point sources are hard to control.

Toxic environmental pollution affects more than 200 million people worldwide, according to Pure Earth, a non-profit environmental organization. In some of the world's worst polluted places, babies are born with birth defects, children have lost 30 to 40 IQ points, and life expectancy may be as low as 45 years because of cancers and other diseases. Let us discuss the different types of pollution, their causes and effects on mankind and the environment as a whole.

Sources and Causes of Environmental Pollution

The sources and causes of environmental pollution includes the following:

Industrial activities: The industries all over the world that brought prosperity and affluence, made inroads in the biosphere and disturbed the ecological balances. The pall of smoke, the swirling gases, industrial effluents and the fall-out of scientific experiments became constant health hazards, polluting and contaminating both air and water. The improper disposal of industrial wastes are the sources of soil and water pollution. Chemical waste resulting from industry can pollute lakes, rivers and seas and soil too as well as releasing fumes.

Dumping solid waste: Household and commercial waste pollutes the environment when not disposed of properly.

Vehicles: The smoke emitted by vehicles using petrol and diesel and the cooking coal also pollutes the environment. The multiplication of vehicles, emitting black smoke that, being free and unfettered, spreads out and mixes with the air we breathe. The harmful smoke of these vehicles causes air pollution. Further, the sounds produced by these vehicles produces noise-pollution.

Rapid urbanization and industrialization: The urbanization and the rapid growth of industrialization are causing through environmental pollution the greatest harm to the plant life, which in turn causing harm to the animal kingdom and the human lives.

Population overgrowth: Due to the increase in population, particularly in developing countries, there has been surge in demand for basic food, occupation and shelter. The world has witnessed massive deforestation to expand absorb the growing population and their demands.

Combustion of fossil fuels: The combustion of fossil fuels pollutes the air, the soil and the water with noxious gases such as CO_2 and CO .

Agricultural waste: Fertilizers and pesticides used in agriculture are key causes of environmental pollution.

Air Pollution: It is the most prevalent and dangerous form of pollution especially considered to go hand in hand with urbanization. There are many reasons to it. Primary among these is the excessive fuel combustion which has become a basic necessity for cooking, transport and other industrial activities. This releases umpteen no. of chemicals to the air which are far from being removed from it. These are directly affecting our existence.

Smoke releases SO_2 into the air making it toxic. It is caused mainly due to chimneys, factory stacks, vehicles or something as common as 'burning of wood'. Release of SO_2 and other greenhouse gases into air causes global warming and has capacity to cause acid rains and droughts worldwide. This has heavily increased the cases of Asthma, Bronchitis and the more dangerous lung cancer, mainly in the metro cities.

Air pollution is believed to end lives of over 20 lakh people every year – a study, published in the journal Environmental Research Letters, says.

One of the major and unfortunate examples of what can air pollution lead to is the Bhopal Gas Tragedy of 1984. It was a direct result of release of methyl isocyanate gas at Union Carbide plant in Bhopal. It killed over 2,000 people, and over 200,000 suffered respiratory problems. An irritant (e.g. particulates less than 10 micrometers) may cause respiratory illnesses, cardiovascular disease and increases in asthma. Even today there are birth defects in the babies borne, which are believed to be because of the tragedy.

"The very young, the old and those with vulnerable immune systems are most at risk from air pollution. The air pollutant may be carcinogenic (e.g. some volatile organic compounds) or biologically active (e.g. some viruses) or radioactive (e.g. radon). Other air pollutants like carbon dioxide have an indirect impact on human health through climate change" – Prof. Harry Sealy, in an interview, to the Live Science journal.

Water Pollution: Every living being depends, directly, on water so this has taken a heavy toll on the entire living population. Other than direct dependencies, more than 60% of the species live in some form of water. Thus water pollution is another major type of pollution that needs to be curbed.

It can be attributed to many factors -industrial effluent dumped into the rivers and sea causes a huge imbalance in the water properties which renders the water bodies unfit for aquatic lives. Water pollution is also a major cause of diseases caused to the non-aquatic species.

Insecticides, pesticides which are sprayed on the plants, pollutes the ground water system and oil spills in the oceans have caused irreparable damage to the water bodies. Eutrophication is another big source; it occurs due to daily activities like washing clothes, utensils near lakes, ponds or rivers; this forces detergents to go into water which blocks sunlight from penetrating, thus reducing oxygen and making it inhabitable.

According to National Oceanic and Atmospheric Administration (NOAA), 80 percent of the pollution in marine environments comes from the land through sources such as runoff. Water pollution can severely affect marine life. For example, sewage causes pathogens to grow, while organic and inorganic compounds in water can change the composition of the precious resource. According to the EPA, low levels of dissolved oxygen in the water are also considered a pollutant. Dissolved oxygen is caused by the decomposition of organic materials, such as sewage introduced into the water.

Water pollution not only harms the aquatic beings but it also contaminates the entire food chain by severely affecting humans dependent on these. Water-borne diseases like cholera, diarrhoea have also increased in all places.

Soil pollution: Also known as Land Pollution, this occurs due to incorporation of unwanted chemicals in the soil due to human activities. Use of insecticides and pesticides absorbs the nitrogen compounds from the soil making it unfit for plants to derive nutrition from. Release of industrial waste, mining and deforestation also exploits the soil. Since plants can't grow properly, they can't hold the soil and this leads to soil erosion.

Food is a big contributor to landfill waste. Up to 40 percent of food produced in the United States is trashed each year, according to the Natural Resources Defense Council.

Commercial or industrial waste is a significant portion of solid waste. According to the University of Utah, industries use 4 million pounds (1.8 million kg) of materials in order to provide the average American family with needed products for one year. Much of it is classified as non-hazardous, such as construction material (wood, concrete, bricks, glass, etc.) and medical waste (bandages, surgical gloves, surgical instruments, discarded needles, etc.). Hazardous waste is any liquid, solid or sludge waste that contain properties that are dangerous or potentially harmful to human health or the environment. Industries generate hazardous waste from mining, petroleum refining, pesticide manufacturing and other chemical production. Households generate hazardous waste as well, including paints and solvents, motor oil, fluorescent lights, aerosol cans, and ammunition.

While the above three are most common forms of Pollution that we hear about, there are few other forms of Pollution that have seemed to grow at an alarming pace these days. Let us briefly look at what they are.

Noise pollution: It is caused when a noise which is of higher intensity than 85 db reaches our bare ears. It may lead to psychological problems like stress & hypertension. It can also lead to permanent hearing impairment, which is worse. It is mainly caused by loud pumps and compressors in the chemical industries. Even marriage functions and rock music concerts are often ignored contributors to this type of pollution.

Radioactive pollution: This is considered one of the most dangerous pollution because of its permanent effects. An unarrested upset in a nuclear plant, careless nuclear waste disposal, etc. It can cause cancer – skin, blood, infertility due to exposure, birth defects and blindness; It has the ability to permanently change soil, air and water – the major sources of life. It can even cause mutation in species which can propagate for ages.

Thermal/heat pollution: This is caused as a result of excessive heat release in the environment. This leads to irreversible and undesirable changes of almost permanent nature. Industries and Vehicles are direct contributors to this. Deforestation is an indirect contributor. Other than the greenhouse gases, zyada this has increased the earth's temperature, and has potential to cause drastic climatic changes; and wildlife extinction.

Light pollution: Whenever illumination available is more than what's required in an area, this pollution kicks in. It is more noticeable in big cities, on advertising boards and billboards, mainly during large scale events, vis-a-vis Concerts, sport events & even mariages, at the night. It mainly affects the astronomical observations by making the stars very difficult to observe & study.

Effects of Pollution

Environment Degradation: Environment is the first casualty for increase in pollution weather in air or water. The increase in the amount of CO₂ in the atmosphere leads to smog which can restrict sunlight from reaching the earth. Thus, preventing plants in the process of photosynthesis. Gases like Sulfur dioxide and nitrogen oxide can cause acid rain. Water pollution in terms of Oil spill may lead to death of several wildlife species.

FIRST TERM EXAMINATION [FEB. 2019]
EIGHTH SEMESTER [B.TECH]
HUMAN VALUES AND PROFESSIONAL
ETHICS-II [ETHS-402]

Time : 1.30 hrs.

M.M. : 30

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

Q.1. Write any two short notes:

Q.1. (a) Impact on Social Media and Print Media on values.

Ans. Almost a quarter of the world's population is now on Facebook. In the USA nearly 80% of all internet users are on this platform. Because social networks feed off interactions among people, they become more powerful as they grow.

Thanks to the internet, each person with marginal views can see that he's not alone. And when these people find one another via social media, they can do things — create memes, publications and entire online worlds that bolster their worldview, and then break into the mainstream.

Without social media, social, ethical, environmental and political ills would have minimal visibility. Increased visibility of issues has shifted the balance of power from the hands of a few to the masses.

The flipside: Social media is slowly killing real activism and replacing it with 'slacktivism'.

While social media activism brings an increased awareness about societal issues, questions remain as to whether this awareness is translating into real change.

Some argue that social sharing has encouraged people to use computers and mobile phones to express their concerns on social issues without actually having to engage actively with campaigns in real life. Their support is limited to pressing the 'Like' button or sharing content.

This is a very human reaction when people are given options that absolve them from responsibility to act. A 2013 study by the University of British Columbia's Sauder School of Business found that when people are presented with the option of 'liking' a charitable cause, they use this to opt-out of actually committing time and money to a charitable cause. On the other hand, when people are allowed to show support in private, they are more likely to show meaningful support in terms of making a financial contribution.

The researchers found that a public endorsement is an action meant to satisfy others' opinions, whereas people who give in private do so because the cause is aligned to their values.

1. Concept of safety:

Safety is a state in which hazards and conditions leading to physical, psychological and material harm are controlled in order to preserve the health and well-being of individuals and the community. It is an essential resource for everyday life, needed by individuals and communities to realise their aspirations.

Attaining an optimum level of safety requires individuals, communities, governments and others to create and maintain the following conditions, whichever work is considered :

2-2019

- Eighth Semester, Human Values and Professional Ethics-II
- a climate of social cohesion and peace as well as of equity protecting human rights and freedoms, at the family, local, national or international level;
 - the prevention and control of injuries and other consequences or harm caused by accidents;
 - the respect of the values and the physical, material and psychological integrity of individuals; and
 - the provision of effective preventive, control and rehabilitation measures to ensure the presence of the three previous conditions.

These conditions can be assured by initiatives that focus on the environment (physical, social, technological, political, economic and organizational) and on behaviour.

2. Principles of Risk management:

The core principles that drive decision-making for prioritizing and mitigating risk are likely embedded deep in most risk managers' brains, but as with many other bits of knowledge a review of the basics can be both reinforcing and refreshing. Our day-to-day work keeps us so busy we may not have the opportunity to provide basic education to organizational leaders, members of our department, physicians and staff about exactly what risk management is. Reinforcing these principles can help demonstrate how robust risk management program supports achievement of the organization's mission and vision.

The five basic risk management principles of risk identification, risk analysis, risk control, risk financing and claims management can be applied to most any situation problem. One doesn't realize that these principles are actually applied in daily life over and over until examples are brought to light. Using everyday examples in education programs as a way of introducing the principles, and then transitioning to scenarios and problems faced in patient care and healthcare operations, can be an effective teaching tool when promoting the contributions that risk management makes to the organization's success.

Q.2 Explain any one nuclear disaster like the Three Mile Island or Chernobyl Nuclear Disaster with the ethical issues involved.

Ans. Here I am going to explain Nuclear Disaster taking the Chernobyl Nuclear Disaster as an example:

Chernobyl disaster, accident in 1986 at the Chernobyl nuclear power station in the Soviet Union, the worst disaster in the history of nuclear power generation. The Chernobyl power station was situated at the settlement of Pryp'yat, 10 miles (16 km) northwest of the city of Chernobyl (Ukrainian: Chornobyl) and 65 miles (104 km) north of Kiev, Ukraine. The station consisted of four reactors, each capable of producing 1,000 megawatts of electric power; it had come online in 1977-83.

The disaster occurred on April 25-26, 1986, when technicians at reactor Unit 4 attempted a poorly designed experiment. Workers shut down the reactor's power regulating system and its emergency safety systems, and they withdrew most of the control rods from its core while allowing the reactor to continue running at 7 percent power. These mistakes were compounded by others, and at 1:23 AM on April 26 the chain reaction in the core went out of control. Several explosions triggered a large fireball that blew off the heavy steel and concrete lid of the reactor. This and the ensuing fire in the graphite reactor core released large amounts of radioactive material into the atmosphere, where it was carried great distances by air currents. A partial meltdown of the core also occurred.

On April 27 the 30,000 inhabitants of Pryp'yat began to be evacuated. A cover-up was attempted, but on April 28 Swedish monitoring stations reported abnormally high levels of wind-transported radioactivity and pressed for an explanation. The Soviet government admitted there had been an accident at Chernobyl, thus setting off an international outcry over the dangers posed by the radioactive emanations. By contained, albeit at great risk to workers. Radioactive debris was burned at some 800 temporary sites, and later in the year the highly radioactive reactor core was enclosed in a concrete-and-steel sarcophagus (which was later deemed structurally unsound).

Some sources state that two people were killed in the initial explosions, whereas others report that the figure was closer to 50. Dozens more contracted serious radiation sickness; some of these people later died. Between 50 and 185 million curies of radionuclides (radioactive forms of chemical elements) escaped into the atmosphere—several times more radioactivity than that created by the atomic bombs dropped on Hiroshima and Nagasaki, Japan. This radioactivity was spread by the wind over Belarus, Russia, and Ukraine and soon reached as far west as France and Italy. Millions of acres of forest and farmland were contaminated, and although many thousands of people were evacuated, hundreds of thousands more remained in contaminated areas. In addition, in subsequent years many livestock were born deformed, and among humans several thousand radiation-induced illnesses and cancer deaths were expected in the long term. The Chernobyl disaster sparked criticism of unsafe procedures and design flaws in Soviet reactors, and it heightened resistance to the building of more such plants. Chernobyl Unit 2 was shut down after a 1991 fire, and Unit 1 remained on-line until 1996. Chernobyl Unit 3 continued to operate until 2000, when the nuclear power station was officially decommissioned.

Q.3 How can proper and reliable maintenance reduce the risk of any failure of any system.

Ans. Reliability Centered Maintenance (RCM) is a process used to determine what must be done to ensure that physical assets continue to do what its users want in its present operating context. Ultimately, by performing RCM, organizations are looking to develop unique maintenance schedules for each critical asset within a facility or organization.

There are four basic principles of an RCM program, stated in different ways by organizations all over the world. A program is RCM if it:

1. Is scoped and structured to preserve system function
2. Identifies failure modes, which are the ways in which something might fail. Failures are any errors or defects, especially ones that affect the customer, and can be potential or actual
3. Addresses failure modes by importance
4. Defines applicable maintenance task candidates and selects the most effective one in the case of important failure modes

Industry professionals have described an RCM program as: "The best way to develop a maintenance improvement program improvement program." — A. M. Smith

Evaluation Criteria for Reliability-Centered Maintenance (RCM Processes (SAE JA1011) identifies the basic requirements a program must meet before it is truly RCM. It begins with these seven questions:

- What is the item supposed to do and what are its associated performance standards?
- In what ways can it fail to provide the required functions?
- What are the events that cause each failure?
- What happens when each failure occurs?
- What systematic tasks can be performed proactively to prevent, or to diminish the consequences of the failure?
- What must be done if a suitable preventive task cannot be found?

Implementation of A Reliability Centered Maintenance Program

- In what way does each failure matter?
- What are the safety concerns with this failure?
- Does this failure mode result in full or partial outages?
- What impact does this failure have on operations/production?

Implementation of A Reliability Centered Maintenance Program

There are three phases (Decision, Analysis, and Act) of a reliability centered maintenance program, and seven steps within these phases to ensure the program is fully implemented.

Phase I: Decision:

- Justification and planning based on need, readiness and desired outcomes.

1. Analysis Preparation: RCM analysis is only as effective as the team behind it. The most effective cross-functional teams include maintenance employees, project leaders, subject matter experts, and if possible, executive leadership.

Additionally, documenting procedures and your project plan can be vital to keeping your team on track. The beginning of an RCM project is a great time to outline your organizational goals, project management concerns, budget and timeline, and potential obstacles.

2. Select Equipment for RCM Analysis: Equipment selected for RCM analysis should be critical to operations, the cost of repair vs. replace and previous spending on Preventive Maintenance. To select the best candidate, ask yourself these questions:

- Could failure be difficult to detect during normal operation and maintenance?
- Could failure affect safety?
- Could failure have a significant impact on operations?
- Could failure have a significant impact on spending?
- 3. Identify Functionality: Define a complete list of a piece of equipment's functionality, including as much data driven information as possible. It is important for your team to specify your desired asset performance levels instead of actual performance, as it may reflect an operational or maintenance issue. System functionality then drives the required functions of the equipment supporting the system functions.

• Phase II: Analysis:

Conduct the RCM study in a way that provides a high quality output.

- 4. Identify Functional Failures: Functional failure is the inability of an asset or system to meet acceptable standards of performance. Failures can encompass poor performance, over performance, performing unnecessary or unintended functions, or complete failure. For example, when a motor bearing is failing due to lack of lubrication, a total functional failure would be the motor not rotating, and the motor failing to function.

Function

Functional Failure

Deliver oil from tank to tank at no less than 500L/minute	<ol style="list-style-type: none"> 1. Oil is leaking 2. No oil is being delivered 3. Oil is being delivered slower than 500L/minute
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document what actually happens when failures occur. What can be observed? What is the impact of the failure on production? Is there a significant safety impact?

6. Identify Failure Modes: Once you identify your equipment and systematic functional failures, failure modes must be considered. One of the most common techniques FMEA is a step-by-step approach for identifying all possible failures in a design. A manufacturing or assembly process, or a product or service. Understanding the effects of failure involves asking questions such as

- What are the safety concerns with this failure?
- Does this failure mode result in full or partial outages?
- What impact does this failure have on operations/production?

Phase II:Act; Act on the study's recommendations to update assets and maintenance systems, procedures and design improvements

7. Select Maintenance Tasks: At this point, the most appropriate maintenance action can be identified based on the failure mode information. Failure management techniques can be grouped into two categories

Proactive tasks – Preventive and Predictive Maintenance techniques are performed to prevent failure of a piece of equipment or system. Preventive Maintenance is calendar or usage based, and helps to reduce the risk of failure, while Predictive Maintenance, or Condition Monitoring, can detect the failure before it begins

Default actions – Fire fighting or reactive maintenance deal with failures after the fact. Run-to-failure is a tactic where equipment is run until it fails, and then work is performed.

Selecting the right strategy for failure management is rooted in an understanding of failure modes, criticality of equipment and the economic impact of failure

Q.4. Explain Holistic technology. Elaborate with the help of an example. (10)

Ans. Refer Q.2 of End Term Examination 2019

END TERM EXAMINATION [MAY. 2019]
EIGHTH SEMESTER [B.TECH]
HUMAN VALUES AND PROFESSIONAL
ETHICS-II [ETHS-402]

M.M. : 75

Time : 3 hrs.

Note :- Attempt all questions directed. Internal Choice is indicated.

(5 × 5 = 25)

Q.1. (a) Impact of science and technology.

Ans. In present global situation, numerous powerful technologies have been developed to assist people in households and offices. Faster communication is made possible through mobile phones and the Internet. New technology impacts our daily lives in every field, from the cars, cell phones, computers and networks and power. In fact, humans have always been greatly affected with the developments in new technology. However, today new information technology is slightly complex with cloud computing, new methods of security and data encryption. It is a prevailing fact that new information technology not only benefits programmers, database managers, hardware engineers and network analysts but it also benefits the common user. New information technology was developed in 1940's and 1950's for the better working of military and universities.

It is appraised by experts that continual progression of new technology and science made human life simpler. Works can be done easier through high-tech machines and equipment. It gives less work for humans and job can be done faster. It makes human to feel comfortable and easy to live. It also helps people to organize their daily activities. Nowadays, computer is the most useful and popular invention to every people. It is true because computer makes life more enjoyable and through this persons may be able to discover and explore new things. Using computer is like an adventure. It provides people all the information and is used to solve mathematical calculations. Through science and technology, it is easier for inhabitants to communicate with other people around the globe. It is also significant in the field of business because transactions and other events are done through the computer. Science and technology enables every people to live in an easy and modern way of life. It opens the door and allows people to enter into a new world which is fully developed and well civilized.

New science and technology may also one day lead to mainstream alternative fuel vehicles, space travel for civilians, virtual reality conferences, a worldwide network of personal wireless electronics, data transmission at the speed of thought, reversal of global warming and too many other innovations to mention. Latest research in computer science is not limited to medical, business, gadget, IT, space, and education. But it will mean better health, more knowledge and more power.

New research technology are in continuous process and researchers have explored new topics for investigations such as environment and renewable energy, space science, electronics, stem-cell investigations and many others. All these developments in human lives are wholly credited to the amazing invention of computers. The computer application is used and acknowledged worldwide. New models of computers are emerging daily, having different features, unique shapes and attractive designs.

Q.1. (b) Professional Accountability.

Ans. Engineering covers a wide range of disciplines, such as mechanical, structural, environmental, or electrical engineers, to name a few. But all are considered professionals,

no matter what their place in the organization. Engineers are responsible for many projects that can impact the public. Thus there is a set of ethical and professional standards they're expected to follow. Failure to do so can have legal or career repercussions. Here are four ways that engineers are held accountable.

1. Licensure: Engineering covers a wide range of skills and activities. By the end of 2015, there were 1.6 million engineers working in the US. Regulations may include

obtaining a professional license before an engineer can offer their services to the public or accept certain contracts. Most jurisdictions have statutes defining just what an engineer is, and what they may or may not do.

For instance, only licensed engineers may be allowed to approve blueprints or building plans. This can include related documentation such as studies, reports, calculations, or maintenance records. They will also be restricted to working only within the definitions of the specialty they are qualified for, such as civil or nuclear engineering. Unlicensed engineers may be limited to working under a fully licensed supervisor or manager.

2. Requirements: Many locations will also have requirements on exactly what constitutes a qualified engineer before licensing, registration, or even work on certain civil projects takes place. This usually involves completion of a four-year degree in a particular discipline at an accredited college. There are only 1,074 accredited engineering programs in the US. Some organizations may require a master's degree.

Typically, an education is followed by passing a Fundamentals of Engineering (FE) exam indicating a certain level of basic and applied knowledge. This is followed by passing a written Practice of Engineering (PE) exam showing proficiency in the chosen engineering discipline. Engineers passing these exams may require four years or more of on-the-job experience as an intern before they can be licensed themselves.

3. Quality: These standards help to ensure quality results in engineering outcomes, whether it's building a bridge or designing a new cellphone charger. Engineers, like all professionals, are required to follow established procedures and precautions in order to avoid charges of negligence. If an engineer uses shoddy materials, inaccurate calculations, or even sub-standard designs, they or their company could be liable for damages whether it was done knowingly or not.

As one recent example, the failure of Takata's vehicle airbags and their failure to address the problem led to federal fines of \$14,000 per day and the loss of one of their biggest clients, Honda Motor Company. In some circumstances, if the engineer knowingly risked public safety and people were injured, this could involve criminal charges.

4. Ethics: An engineer can also be held accountable if there was a violation of professional ethics. This usually amounts to accepting bribes or gifts in the course of a project. If the engineer opts to contract with certain vendors or contractors, approve plans, overlook building codes, environmental laws, or other regulations in exchange for a reward, it can be considered unethical conduct.

Q.1. (c) Risk benefit analysis.

Ans. A risk-benefit ratio is the ratio of the risk of an action to its potential benefits. Risk-benefit analysis is analysis that seeks to quantify the risk and benefits and hence their ratio.

Analyzing a risk can be heavily dependent on the human factor. A certain level of risk in our lives is accepted as necessary to achieve certain benefits. For example, driving

an automobile is a risk most people take daily; also since it is mitigated by the controlling factor of their perception of their individual ability to manage the risk-creating situation. When individuals are exposed to involuntary risk (a risk over which they have no control), they make risk aversion their primary goal. Under these circumstances, individuals require the probability of risk to be as much as one thousand times smaller than for the same situation under their perceived control (a notable example being the common bias in the perception of risk in flying vs. driving).

Evaluations of future risk can be:

- Real future risk, as disclosed by the fully matured future circumstances when they develop.
- Statistical risk, as determined by currently available data, as measured actuarially for insurance premiums.
- Projected risk, as analytically based on system models structured from historical studies.
- Perceived risk, as intuitively seen by individuals.

Q.1. (d) The perils of technological optimism:

Ans. Pioneering environmentalists such as Paul Ehrlich argued strongly against 'Technological Optimism'. Broadly speaking, this is the belief that technological improvements will meet unlimited human demand for resources, including energy. However, some appear to have embraced this idea wholeheartedly, probably in reaction to the slow response of governments to the threat of climate change. Technologically optimistic solutions to global warming include 'clean' coal, PV, wind, pumped hydro and lithium batteries.

Perhaps the ultimate in techno-optimism is the idea of spraying aerosols containing sulphate or carbonate into the stratosphere to reflect solar radiation back into space.

Battery storage is another technologically optimistic scheme intended to regulate the (hoped-for) unlimited supply of wind and solar energy.

It is a complex issue and there appears to be uncertainty about economies of scale and the rational use of finance and material resources. Large public battery schemes seem preferable where existing infrastructure is available, but the idea of going 'off-grid' by means of small household and 'community' schemes appears to be gaining popularity.

Maintaining reliable energy supplies in a fragmenting system is obviously very challenging and there is presumably an increasing risk of assets becoming 'stranded' through lack of integrated planning.

Batteries are likely to rapidly become cheaper and may even pay for themselves in the medium-term, but it is doubtful that overall emissions will be reduced. The underlying assumptions are that the world has unlimited supplies of Lithium and that the impacts of the technology are negligible.

Mining and processing of Lithium for battery storage uses very large volumes of water which is sometimes diverted away from local communities. Like other mining operations, Lithium extraction may cause health problems, pollution and social disruption.

Most energy has to be put into a battery than can be taken out, but using 'excess' solar and wind power to 'split' water thereby releasing hydrogen, has great potential for this act can be committed:

'balancing' clean energy storage in the long term. Membrane electrolysis and related technologies are advancing fast and could have an important role in the energy mix.

This field is like rocket science, brain surgery and quantum physics all rolled together: the various technologies against a range of technical, economic and environmental criteria. I'm hoping that happens before the Neo-Techno-Optimists' Take us too far down another wrong track.

Q.1. (e) Corporate social responsibility (CSR):

Ans. Corporate social responsibility (CSR for short) is the internationally regarded concept for responsible corporate behavior – although it is not clearly defined. In a nutshell, CSR refers to the moral and ethical obligations of a company with regards to their employees, the environment, their competitors, the economy and a number of other areas of life that its business affects.

CSR is often understood as a voluntary commitment to certain company rules i.e. beyond state laws and standards. This means that companies that operate responsibly and morally can often use their CSR for PR purposes as well. If it becomes known that a company voluntarily commits itself to a good cause, this improves their public image.

For this reason, however, the concept of corporate social responsibility is repeatedly criticized: many companies do not embrace CSR as a result of genuine altruism, but rather to develop their own image. In this article we explain in detail what CSR is, how it has developed, and how CSR is borne out in some companies today.

The modern concept of company responsibility as we know it today arose in the 1950s in the US. At that time, many public discussions were being held on the topic and the first scientific findings were being published. Howard R. Bowen in his article "Social Responsibilities of the Businessman" described corporate responsibility as the logical consequence of the social accountability of individuals within the company. Thereby, it would have to orient itself according to these rules and thereafter enforce them. At the time, most companies did not feel obliged to work towards a more moral business focus: the defining outlook was that economic growth remained the determiner of everyday working life.

Q.1. (f) Embezzlement.

Ans. Embezzlement occurs when someone steals or misappropriates money or property from an employer, business partner, or another person who trusted the embezzler with the asset. Embezzlement is different from fraud or larceny (theft). The embezzler has permission to handle the property in a certain way (but not to take it). Instead, the wrongdoer uses the position of trust granted by the owner to convert the property to the embezzler's possession and control (to take it).

Examples of Embezzlement

The act of embezzlement can occur in many familiar circumstances. Below you'll find a couple of typical examples.

How Employees Embezzle on the Job

An employee who takes money or property from an employer (or sometimes a customer) and uses it for personal benefit commits embezzlement. Here are a few ways this act can be committed:

- charging more than the cost of the product and pocketing the difference
- "borrowing" money from the cash register
- depositing vendor checks into a personal account
- padding an expense account
- taking inventory or office supplies for personal use
- taking inventory or office supplies to hide losses or stolen amounts
- changing the account books to a personal account
- moving money from a customer's account into the company payroll
- adding a fake employee to the company payroll
- taking bribes or kickbacks, and
- tampering with employee time records.

Embezzlement of Property Held in Trust

- Embezzlement can occur whenever someone mishandles property that someone else entrusts with them. For instance, embezzlement of a sports league or civic organization's bank account
- borrowing money from a sports league or civic organization's bank account
 - adjusting the books to hide a misappropriation of funds
 - using a client's lawsuit award to pay operating expenses
 - selling property and pocketing the proceeds without accounting for it to heirs
 - using a child or relative's Social Security check
 - setting up a check or credit card kiting scheme, and
 - stealing money through a Ponzi scheme.

Q.1. (g) Job Satisfaction.

Ans. Job Satisfaction, as the name suggests, is the feeling of contentment or a sense of accomplishment, which an employee derives from his/her job. It is a result of appraisal that causes one to attain their job values or meet out their basic needs. It helps in determining, to what extent a person likes or dislikes his/her job.

The employee's attitude towards the job and organization as well becomes positive when they realize that their job facilitates them in achieving their needs and values, directly (by performing it) or indirectly (by the package they get). In short, it represents the difference between employee's expectations and experience he/she derives from the job. The wider the gap, the more is the dissatisfaction.

Facets of Job Satisfaction

Job Satisfaction is all about an individual's feelings about the work, work environment, pay, organization culture, job security and so on. The essential aspects of job satisfaction include:

- Job content facet
 - Work characteristics
 - Amount of work
 - Compensation
- Job context facet
 - Co-workers, Colleagues, Supervisor, etc.
 - Working conditions
 - Growth and development opportunities
 - Policies and rules of organisation

There are instances when an employee's feelings concerning one facet may spill over and affect another facet, meaning that if an employee is unhappy with the amount of work, he/she will likely to become unhappy with the compensation received. Moreover, each facet of job satisfaction is linked to the respective work environment and cognitive component of the employee's attitude.

Q.1. (h) Ethical Audit.

Ans. An investigation into how well (or poorly) a company conforms to the ethical standards of its industry or society generally. An ethics audit may consider the company's own practices, how it redresses grievances, how it discloses its finances, whether it punishes whistleblowers, and even the general cultural surrounding its business dealings. Some companies may formally adopt a code of ethics and conduct periodic ethics audits to see how closely they follow their own rules.

Audits are designed to dig deep into company records to ensure reliability and accuracy in areas like accounting systems, financial reporting and legal compliance. Audits generally deal with quantitative, easily measurable data. Ethical issues, on the other hand, are more often qualitative or subjective in nature. A number of qualitative research techniques make an ethical audit possible, but an ethical audit still necessarily functions differently from any kind of financial audit. Considering multiple perspectives to gain a big-picture understanding of a company's commitment to ethics is the key to an ethical audit.

Q.2. What do you mean by holistic technology? Explain with the help of example.

Ans. Holistic (holistic technology) is an approach to IT management that is concerned with viewing and treating a complex computer system as a single entity.

Just as a holistic approach to medicine treats each patient as an integrated system and considers how the mind affects the body, a holistic approach to technology focuses on the interdependence of system components.

Holistic approaches include:

Systems thinking - a holistic approach to analysis that focuses on the way that a system's constituent parts interrelate, how systems work over time and how they work within the context of even larger systems.

Process-centric BPM - a holistic approach to BPM that centers on business processes themselves, rather than individual elements such as documents, workflow or people.

Information governance - a holistic approach to managing corporate information by implementing processes, roles, controls and metrics that treat information as a valuable business asset.

Supply chain sustainability - a holistic perspective of supply chain processes and technologies that go beyond the focus of delivery, inventory and traditional views of cost.

Enterprise risk management - a holistic approach to planning, organizing, leading, and controlling an organization's activities in order to minimize the effects of risk on capital and earnings.

Franklin elaborated: "When work is organized as a sequence of separately executable steps, the control over the work moves to the organizer, the boss or manager. In political terms, prescriptive technologies are designs for compliance."

Platform capitalism relies upon prescriptive technologies like those that tell Uber drivers how to act in order to keep their 5-star ratings. You can see how dominant such a prescriptive technology becomes by the number of offers to game the platform. The ubiquitous search engine optimization (SEO) industry is based on Google's dominance of internet search. But gaming the system means buying into it. Prescriptive technologies limit human potential.

Holistic technologies are used by knowledge artisans to do and share their work. For example, the open source community is based on ensuring that code is transparent and is open to forking (changing the direction of development). Holistic technologies enable human creativity and potential.

As informed citizens we have to start asking ourselves how we can cast away these prescriptive technologies and master holistic ones between engaged artisans. Corporations will be of no assistance and most of our governing bodies are inadequately informed to be of much help. Not only are we the media, but we must become the technology as well.

OR

Q.2. What are the Universal Human Values? Discuss in detail. (12.5)

Ans. A value is a universal value if it has the same value or worth for all, or almost all, people. Spheres of human value encompass morality, aesthetic preference, human traits, human endeavour, and social order. Whether universal values exist is an unproven conjecture of moral philosophy and cultural anthropology, though it is clear that certain values are found across a great diversity of human cultures, such as primary attributes of physical attractiveness (e.g. youthfulness, symmetry) whereas other attributes (e.g., slenderness) are subject to aesthetic relativism as governed by cultural norms. This objection is not limited to aesthetics. Relativism concerning morals is known as moral relativism, a philosophical stance opposed to the existence of universal moral values.

The claim for universal values can be understood in two different ways. First, it could be that something has a universal value when everybody finds it valuable. This was Isaiah Berlin's understanding of the term. According to Berlin, "...universal values... are values that a great many human beings in the vast majority of places and situations, at almost all times, do in fact hold in common, whether consciously and explicitly or as expressed in their behaviour..." Second, something could have universal value when all people have reason to believe it has value. Amartya Sen interprets the term in this way, pointing out that when Mahatma Gandhi argued that non-violence is a universal value, he was arguing that all people have reason to value non-violence, not that all people currently value non-violence. Many different things have been claimed to be of universal value, for example, fertility, pleasure, and democracy. The issue of whether anything is of universal value, and, if so, what that thing or those things are, is relevant to psychology, political science, and philosophy, among other fields.

Perspectives from various disciplines

Philosophy: Philosophical study of universal value addresses questions such as the meaningfulness of universal value or whether universal values exist.

Sociology: Sociological study of universal value addresses how such values are formed in a society.

Psychology and the search for universal values

S. H. Schwartz, along with a number of psychology colleagues, has carried out empirical research investigating whether there are universal values, and what those values are. Schwartz defined 'values' as "conceptions of the desirable that influence the way people select action and evaluate events." He hypothesised that universal values would relate to three different types of human need: biological needs, social co-ordination needs, and needs related to the welfare and survival of groups. Schwartz's results from a series of studies that included surveys of more than 25,000 people in 44 countries with a wide range of different cultural types suggest that there are fifty-six specific universal values and ten types of universal value. Schwartz's ten types of universal value are: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security. Below are each of the value types, with the specific related values alongside:

- Power: authority; leadership; dominance; social power; wealth
- Achievement: success; capability; ambition; influence; intelligence; self-respect
- Hedonism: pleasure; enjoying life
- Stimulation: daring activities; varied life; exciting life
- Self-direction: creativity; freedom; independence; curiosity; choosing your own goals
- Universalism: broadmindedness; wisdom; social justice; equality; a world at peace; a world of beauty; unity with nature; protecting the environment; inner harmony
- Benevolence: helpfulness; honesty; forgiveness; loyalty; responsibility; friendship
- Tradition: accepting one's portion in life; humility; devoutness; respect for tradition; moderation
- Conformity: self-discipline; obedience
- Security: cleanliness; family security; national security; stability of social order; reciprocation of favours; health; sense of belonging

Schwartz also tested an eleventh possible universal value, 'spirituality', or 'the goal of finding meaning in life', but found that it does not seem to be recognised in all cultures.

Q.3. Describe various testing methods for safety. (12.5)

Ans.

Various testing methods for safety are as under:

1. Impact Resistance – This is a test of a shoe's capacity to protect the toe area of the foot against falling objects. For impact testing, a weight is dropped onto the protective toe cap area of the footwear. Each standard identifies the atmospheric conditions of the test, the shape of the striker, the amount of weight and distance from which the weight must be dropped, the velocity of the drop and the impact energy delivered. The clearance remaining inside the cup after impact is then determined.

2. Compression Resistance – This is a test of a shoe's capacity to protect the toe area of the foot against heavy rolling objects. For compression testing, the toe cap area of the footwear is compressed between parallel plates at a given rate of speed until the required compressive force is reached. The clearance remaining inside the cap after the compression is then determined.

3. Metatarsal Protection – This test measures the level of protection provided to the upper foot (metatarsal bones) and toe areas. Footwear offering metatarsal protection is designed to prevent or reduce injuries when the toe and metatarsal areas of the foot

are exposed to "drop" hazards. Metatarsal protection safety shoes may be constructed with either internal or external metatarsal guards. For testing, a wax form is fit into the footwear and a weight is dropped onto the protected metatarsal area of the footwear, similar to the impact test. The height of the wax form after impact is then determined.

4. Puncture Resistance - PR footwear reduces the possibility of sharp objects (nails, glass or metal) penetrating through the outsole causing injury to the foot. Protection is provided by a steel or puncture resistant material imbedded in the insole of the footwear. Puncture resistant devices are tested using a sharp steel pin forced into the device at a given speed. The force required to puncture the device is measured. The devices are also tested for flexibility and corrosion resistance.

5. Electric Shock Resistance - This type of footwear is designed to provide a secondary source of protection against accidental contact with live electrical circuits, electrically energized conductors, parts or apparatus under dry conditions, reducing the potential of electric shock. Protection is severely deteriorated in wet environments. To test electric shock resistant properties, the footwear is placed on a metal mesh platform acting as a large electrode. The footwear is filled with small metal spheres and a second electrode is placed within the spheres. A specified high voltage is applied to the footwear through the metal platform for a given length of time. Resistance is determined by the current flow (or leakage) through the footwear.

6. Static Dissipation - This footwear is constructed to reduce excess static electricity by conducting the charge from the body to the ground. The footwear allows for limited protection against incidental contact with live electrical circuits and should not be worn around highly charged electrical equipment. It is recommended that static dissipative footwear be worn only in clean environments and worn in conjunction with static dissipative flooring. Test methods for Static Dissipation vary by standard, using either human subjects or metal spheres inside footwear that are placed on either a wet or dry base electrode plate. A specified voltage is applied for a prescribed time and the electrical resistance is measured. Test conditions also vary in specified atmospheric conditions.

7. Conductivity - Conductive footwear is designed to facilitate/ discharge static electricity from your body through your shoes into grounded floors. The floors must be grounded so that a charge can be dissipated properly, minimize static electricity and reduce the possibility of ignition of volatile chemicals or explosives. To test for conductivity, the footwear is placed on a base electrode plate. Depending on the standard, it is tested dry or in water. The footwear is filled with small metal spheres and a second electrode is embedded in the spheres. A specified voltage is applied for a prescribed time and the electrical resistance is measured

OR

Q.3. Discuss the case study on space shuttle "Challenger" disaster in detail.

Ans. Introduction to the Case: On January 28, 1986, seven astronauts were killed when the space shuttle they were piloting, the Challenger, exploded at just over a minute into the flight. The failure of the solid rocket booster O-rings to seal properly allowed hot combustion gases to leak from the side of the booster and burn through the external fuel tank. The failure of the O-ring was attributed to several factors, including faulty

design of the solid rocket boosters, insufficient low-temperature testing of the O-ring material and of the joints that the O-ring sealed, and lack of proper communication between different levels of NASA management. Key Issues

How does the implied social contract of professionals apply to this case? What professional responsibilities were neglected, if any?

Should NASA have done anything differently in their launch decision procedure?

Background

Pressure to launch: NASA managers were anxious to launch the Challenger for several reasons, including economic considerations, political pressure, and scheduling backlogs. Unforeseen competition from the European Space Agency put NASA in a position in which it would have to fly the shuttle dependably on a very ambitious schedule to prove the Space Transportation System's cost effectiveness and potential for commercialization. This prompted NASA to schedule a record number of missions in 1986 to make a case for its budget requests.

The shuttle mission just prior to the Challenger had been delayed a record number of times due to inclement weather and mechanical factors. NASA wanted to launch the Challenger without any delays so the launch pad could be refurbished in time for the next mission, which would be carrying a probe that would examine Halley's Comet. If launched on time, this probe would have collected data a few days before a similar Russian probe would be launched.

There was probably also pressure to launch Challenger so that it could be in space when President Reagan gave his State of the Union address. Reagan's main topic was to be education, and he was expected to mention the shuttle and the first teacher in space, Christa McAuliffe.

The Launch: During the night, temperatures dropped to as low as 57°, much lower than had been anticipated. To keep the water pipes in the launch platform from freezing, safety showers and fire hoses had been turned on. Some of this water had accumulated, and ice had formed all over the platform. There was some concern that the ice would fall off of the platform during launch and might damage the heat-resistant tiles on the shuttle. The ice inspection team thought the situation was of great concern, but the launch director decided to go ahead with the countdown. (Note that safety limitations on how temperature launching had to be waived and authorized by key personnel several times during the final countdown. These key personnel were not aware of the teleconference about the solid rocket boosters that had taken place the night before.)

At launch, the impact of ignition broke loose a shower of ice from the launch platform. Some of the ice struck the left-hand booster, and some ice was actually sucked into the booster nozzle itself by an aspiration effect. Although there was no evidence of any ice damage to the Orbiter itself, NASA analysis of the ice problem was wrong. The booster ignition transient started six hundredths of a second after the igniter fired. The aft field joint on the right-hand booster was the weakest spot on the booster, about 28°F. The booster's segmented steel casing bulged and the joint rotated, expanding inward as it had on all other shuttle flights. The primary O-ring was too cold to seal properly; the cold stiffened heat resistant putty that protected the rubber O-rings from the fuel collapsed, and gases at over 5000°F burned past both O-rings across 70 degrees of arc.

Eight hundredths of a second after ignition, the shuttle lifted off. Engineering cameras focused on the right-hand booster showed about nine smoke puffs coming from the booster aft field joint. Before the shuttle cleared the tower, oxides from the burnt propellant temporarily sealed the field joint before flames could escape.

Fifty-nine seconds into the flight, Challenger experienced the most violent wind shear ever encountered on a shuttle mission. The glassy oxides that sealed the field joint were shattered by the stresses of the wind shear, and within seconds flames from the field joint burned through the external fuel tank. Hundreds of tons of propellant ignited, tearing apart the shuttle.

One hundred seconds into the flight, the last bit of telemetry data was transmitted from the Challenger.

Q.4. Discuss commandments of computer ethics created by Computer Ethics Institute.

Ans. Ten Commandments of Computer Ethics

1. Thou Shall Not Use A Computer To Harm Other People.
2. Thou Shall Not Interfere With Other People's Computer Work.
3. Thou Shall Not Snoop Around In Other People's Computer Files.
4. Thou Shall Not Use A Computer To Steal.
5. Thou Shall Not Use A Computer To Bear False Witness.
6. Thou Shall Not Copy Or Use Proprietary Software For Which You have Not Paid.
7. Thou Shall Not Use Other People's Computer Resources Without Authorization Or Proper Compensation.
8. Thou Shall Not Appropriate Other People's Intellectual Output.
9. Thou Shall Think About The Social Consequences Of The Program You Are Writing Or The System You Are Designing.
10. Thou Shall Always Use A Computer In Ways That Inhere Consideration And Respect For Your Fellow Humans.

OR

Q.4. What is Ozone depletion? Explain the causes, effects and remedies of ozone depletion.

(12.5)

Ans. The earth's atmosphere is composed of many layers, each playing a significant role. The first layer stretching approximately 10 kilometers upwards from the earth's surface is known as the troposphere. A lot of human activities such as gas balloons, mountain climbing, and small aircraft flights take place within this region.

Ozone layer is a deep layer in earth's atmosphere that contain ozone which is a naturally occurring molecule containing three oxygen atoms. These ozone molecules form a gaseous layer in the Earth's upper atmosphere called stratosphere. This lower region of stratosphere containing relatively higher concentration of ozone is called Ozoneosphere. The Ozone layer is found 15-35 km (9 to 22 miles) above the surface of the earth. The ozone layer forms a thick layer in stratosphere, encircling the earth, that has large amount of ozone in it. The ozone layer protects life on earth from strong ultraviolet radiations that comes from the sun. Ultraviolet rays are harmful rays that can drive up the risk of deadly disorders like skin cancer, cataracts and damages the immune system. Ultraviolet rays are also capable of destroying single cell organism, terrestrial plant life, and aquatic ecosystems.

The ozone layer has the capability to absorb almost 97-99% of the harmful ultraviolet radiations that sun emit and which can produce long term devastating effects on humans beings as well as plants and animals.

The destruction of ozone layer is caused by one factor only which is Chlorofluorocarbons (CFCs). Halons and Freons, found commonly in aerosol cans and released by many electronic appliances, these were seen to decrease the level of ozone in stratosphere. All of these gases contain chlorine, which is a major cause behind the thinning of the ozone layer.

The presence of chlorine within CFC's break down the ozone gases in ozone layer which increases the chances of ozone depletion. Till date, CFC's have accounted for about 80% of ozone depletion.

The destruction of the ozone layer is primarily caused when the amount of gases they are exposed to UV light. This then causes a chemical reaction which creates chlorine atoms. These affect the atoms of ozone and cause ozone depletion.

Although the process has been taking place for several years, the ozone layer was repairing itself naturally. With the marked increase in the emission of these gases, the ozone hole above Antarctica is becoming a permanent part of the layer. Even though the damage is reversible, it will require several decades and a major reduction in the emissions.

CFC's are not washed back to the earth and are not even destroyed in reaction with other chemicals which means that they can remain the atmosphere for large period of time may be from 20 to 120 years or more. As a result, they are transported back to stratosphere, where they are eventually broken down by UV rays from the sun, releasing free chlorine.

Even though the hole present above the Antarctic is beginning to show signs of a decline, there are concerns regarding the long term effects. In particular, many scientists are worried that the development of the same conditions in other parts of the world may cause large scale ozone thinning in the future, if not ozone depletion all together.

Effects of the Ozone Hole

Thinning of ozone layer means getting direct in touch with ultra violet rays which can cause skin cancer or skin irritation which can lead to death. A decrease in 1% of ozone layer can cause 5% increase in cases of skin cancer.

Exposure to UV rays has also increased the cases of cataracts which in turn affects people's vision and could also cause an increase in people becoming blind.

Depletion of ozone layer and increase in UV rays can also cause DNA damage which can also be catastrophic.

Aquatic plants and animals are not even safe. UV rays can penetrate through water and can kill small plants and animals. If ozone hole keep on expanding, there would be very few plants which means less food in the whole world.

The effect of the ozone hole and the damage done to the layer is still not very well understood. Apart from the gradual decrease of the ozone layer all over the world, there is little quantifiable evidence of new holes appearing any time soon. Even so, a number of countries have been working towards mitigating the damage.

CFCs have been banned, especially in aerosol cans and various electrical appliances. There have been many conventions held to discuss the methods that will slowly phase out the use of the gases. However, this has been met with a great deal of resistance from industries that are based on the production and use of the gases.

However, the few known and verifiable effects seen within the environment has been a catalyst for change. One of widespread and long lasting effects has been the public awareness towards the environmental issues facing the planet. As one of the first major man-made problems to be discussed on a public forum, it set the ground for public opinion and action on issues such as pollution, greenhouse gases, global warming and the climate crisis.

It also sparked off renewed research about how weather patterns and natural phenomenon may be disturbed small changes in the atmosphere. Ozone depletion is not as serious as it once was, but nonetheless it has had an impact on the planet.

Scientists have been able to determine a number of consequences related to ozone depletion. First is the increase of UVB (Ultraviolet B) light that enters into the atmosphere. This causes environmental damage and problems in human health. Cancer of the skin is being connected to the thinning of the ozone layer.

In the animal kingdom, many species of animals have been found suffering from growing sunburn as a result of increased UV light. Certain crops will also be affected, since they are dependent on cyanobacteria which is quite sensitive to changing levels of the UV radiation. On the other hand, it has also been found that the increased levels allow for the production of more Vitamin D in the animal kingdom.

The ozone layer does not face rampant ozone depletion anymore, as most governments and environmental agencies have worked hard to reduce the emission of CFCs. This has proven to be a success and is the base for further work in reducing dangerous emissions.

Solution to Ozone depletion

1. Using pesticides:

Pesticides are great chemicals to rid your farm of pests and weeds, but they contribute enormously to ozone layer depletion. The surefire solution to get rid of pests and weeds is to apply natural methods. Just weed your farm manually and use alternative eco-friendly chemicals to alleviate pests.

2. Discourage driving of private vehicles

The easiest technique to minimize ozone depletion is to limit the number of vehicles on the road. These vehicles emit a lot of greenhouse gases that eventually form smog, a catalyst in the depletion of ozone layer.

3. Utilize environmentally friendly cleaning products

Most household cleaning products are loaded with harsh chemicals that find way to the atmosphere, eventually contributing to degradation of the ozone layer. Use natural and environmentally friendly cleaning products to arrest this situation.

4. Prohibit the use of harmful nitrous oxide

The Montreal Protocol formed in 1989 helped a lot in the limitation of Chlorofluorocarbons (CFCs). However, the protocol never covered nitrous oxide, which is a known harmful chemical that can destroy the ozone layer. Nitrous oxide is still in use today. Governments must take action now and outlaw nitrous oxide use to reduce the rate of ozone depletion.

While the vast majority of ODS usage is either industrial or commercial, individuals can help in the following ways:

- Buy air-conditioning and refrigeration equipment that do not use HCFCs as refrigerant.
- Conduct regular inspection and maintenance of air-conditioning and refrigeration appliances to prevent and minimize refrigerant leakage.
- For existing air-conditioning and refrigeration appliances that operate on HCFCs, the refrigerant should be recovered or recycled whenever an overhaul of non-HCFCs refrigerant should also be considered.
- When motor vehicle air-conditioners need servicing, make sure that the refrigerants are properly recovered and recycled instead of being vented to the atmosphere.

Q.5. What is the need of Ethical Code? Explain with the help of the case study of Computer Society of India (CSI)?

Ans. Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness, and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.

Fundamental Canons

Engineers, in the fulfillment of their professional duties, shall:

1. Hold paramount the safety, health, and welfare of the public.
2. Perform services only in areas of their competence.
3. Issue public statements only in an objective and truthful manner.
4. Act for each employer or client as faithful agents or trustees.
5. Avoid deceptive acts.
6. Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

All members are required to give an undertaking to the effect that they would abide by the CSI Code of Ethics. The Code of Ethics will also specify the procedure for the action to be taken against concerned members for any breach of this Code. Following is the Code of Ethics prepared by the ExecCom and adopted after approval by balloting by the Voting Members of CSI.

Code of ethics for CSI members (all categories)

- A member of the Computer Society of India (CSI) shall
- Organise the resources available to him and optimise these in attaining the objectives of his organisation
 - Not misuse his authority or office for personal gains
 - Comply with the Indian laws relating to the management of his organisation and operate within the spirit of these laws.

• Conduct his affairs so as to uphold, project and further the image and reputation of the CSI.

- Maintain integrity in research and publications.

As regards his ORGANISATION CSI member should :

• Act with integrity in carrying out the lawful policy and instructions of his organisation and uphold its image and reputation. Plan, establish and review objectives and tasks for himself and his subordinates which are compatible with the Codes of practice of other professionals in the enterprise, and direct all available effort towards the success of the enterprise rather than of himself.

• Fully respect the confidentiality of information which comes to him in the course of his duties, and not use confidential information for personal gain or in a manner which may be detrimental to this organisation or his clients.

- Not snoop around in other people's computer files.

• In his contacts and dealings with other people, demonstrate his personal integrity and humanity and when called to give an opinion in his professional capacity, shall, to the best of his ability, give an opinion that is objective and reliable.

As regards the EMPLOYEES, CSI member should :

• Set an example to his subordinates through his own work and performance, through his leadership and by taking

- Account of the needs and problems of his subordinates.

• Develop people under him to become qualified for higher duties.

• Pay proper regard to the safety and well being of the personnel for whom he is responsible.

• Share his experience with fellow professionals.

As regards the CLIENTS, CSI member should :

• Ensure that the terms of all contracts and terms of business be stated clearly and unambiguously.

- Not use the computer to harm other people or to bear false witness.

• Be objective and impartial when giving independent advice.

As regards the COMMUNITY, CSI member should :

• Make the most effective use of all natural resources employed.

• Be ready to give professional assistance in community affairs.

- Not appropriate other people's intellectual output.

• Always use a computer in ways that ensure consideration and respect for fellow humans.

OR

Q.5. Explain work culture and its different types. Also give the rules for creating the right conditions for a good organizational culture. (12.5)

Ans. Mapping those two dimensions of "competing values" you get four organizational culture types:

- the dynamic, entrepreneurial Create Culture
- the people-oriented, friendly Collaborate Culture
- the process-oriented, structured Control Culture
- the results-oriented, competitive Compete Culture

I.P. University-(B.Tech)-Akash Bala
Hierarchy culture, and Market culture (Cameron & Quinn).

This is a dynamic and creative working environment. Employees take risks. Leaders are seen as innovators and risk takers. Experiments and innovation are a way of finding availability of new products or services is seen as a success. The organization promotes individual initiative and freedom.

• Do new things; create, innovate, envision the future

- Transformational Change
- Handle discontinuity, change, and risk
- Freedom of thought and action, rule-breaking
- Roles like entrepreneurs and visionaries
- Visionaries inclined toward risk, not afraid of uncertainty

(communications, sustainability), but also disruptive services like Airbnb, Uber

Collaborate Culture (Clan Culture)

This working environment is friendly. People have a lot in common, and it feels like a large family. The leaders are seen as mentors or maybe even father figures. They organization is held together by loyalty and tradition. There is great involvement. They emphasize long-term Human Resource Development. Success is defined within the framework of addressing the needs of the clients and caring for the people. The organization promotes teamwork, participation, and consensus.

- Do things together: build teams, people matter
- Long-term Change
- Commitment, empowerment, cohesion, engagement
- Human development
- Collective wisdom, long-lasting partnerships, and relationships
- Roles like a mentor and a coach
- Wary of conflict

Typical in sectors like health care, education, some government agencies, not-for-profits.

Control Culture (Hierarchy Culture)

This is a formalized and structured workplace. Procedures direct what people do. Leaders are proud of efficiency-based coordination and organization. Keeping the organization functioning smoothly is most crucial. Formal rules and policies keep the organization together. The long-term goals are stability and results, paired with an efficient and smooth execution of tasks. Reliable delivery, continuous planning, and low cost define success. The personnel management has to guarantee work and predictability.

- Do things right; eliminate errors
- Incremental Change

- Attention to details, careful decisions, precise analysis
- Increase consistency and reliability, well-informed experts
- Better processes and efficiency, routines
- Roles like organizers and administrators
- Conservative, cautious, logical problem solvers

Typical in sectors like medicine, nuclear power, military, government, banking and insurance, transportation.

Compete Culture (Market Culture)

This is a results-based workplace that emphasizes targets, deadlines, and getting things done. People are competitive and focused on goals. Leaders are hard drivers, producers, and rivals. They can be tough with high expectations. The emphasis on winning keeps the organization together. Reputation and success are the most important. Long-term focus is on rival activities and reaching goals. Market dominance, achieving your goals, and great metrics are the definitions of success. Competitive prices and market leadership are important. The organizational style is based on competition.

- Do things fast: compete, move fast, play to win
- Fast Change
- Customer satisfaction, attack competitors, shareholder value
- Speed: results-right-now, getting things done, achieving goals
- Acquire other firms, outsource selected processes,
- Deliver results, make fast decisions, solve problems
- Leaders are hard-driving, directive, commanding, demanding

Typical of sectors like consultancy, accountancy, sales and marketing, services, manufacturing.