GE1301- PROFESSIONAL ETHICS & HUMAN VALUES

2 MARKS QUESTIONS AND ANSWERS

UNIT - I

1. What are human values?

   Values decide the standard of behavior. Some universally accepted values are freedom justice and equality. Other principles of values are love, care, honesty, integrity, self respect.

2. What are ethical values?

   Trustworthiness, respect, responsibility, fairness, caring is ethical values

3. Distinguish values from ethics and culture.

Values are mainly related to individuals and since they are related to justice, they remain the some for every one. E.g. truth, honesty, empathy, self respect.

Values do not change from individual to individual. Ethics is common to a group of individuals; the group may be religious or professional. Ethics is mostly based on some code or law and judgment of any action is based on code of conduct or law. Ethics change from individual to individual

Culture commonly refers to conduct of a group. E.g system of worship, marriage

It may differ from society to society, nation to nation or religion to religion.

4. What is integrity?

Integrity is the unity of character based on moral values. Consistency in attitudes, emotions and conduct in relations to morally justified actions and values are also the part of integrity of individual. It implies honesty, trustworthiness.

5. Define work ethics

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

6. What is service learning?

Service learning tells that one has moral responsibility to increase the desirable effects and to decrease the harmful effects. Any service should increase the desirable result.

7. Mention some civic virtues?

Good citizen demand civic virtue. It is the principle of not harming the surroundings .it also includes living peacefully, respect for others, protecting the environment and being normally and ethically good.

8. Write short notes on caring and sharing.

Caring is the essence of moral life. Caring involves feelings, relationship, contends with other persons and protecting others and causing least damage to others.

Sharing means sharing of feelings, ideas thoughts, resources and profits. Sharing is always mutually beneficial. Sharing morally acceptable feelings, resources and materials is a value.

9. Write notes on honesty.

Any human being should imbibe honesty-honesty in acts, honesty in speech and honesty in beliefs. Honesty is the fundamental virtue in human relationship even though in may be difficult to follow some times.

10. What is courage as a value?

Courage implies self respect and governs confrontations with danger and risk. It is not excessive rashes or cowardice, but it is the middle ground. Taking calculated risks and boldness in facing crises are the hallmarks of courage as a human value. It defines the mental make up of an individual in taking bold decisions even under adverse situations.

11. Define co-operation.

Co-operation means extending help to others, for a good cause. Co-operation may be through an idea, a suggestion, an assistance or physical work which extends to others for common benefit.

12. Define empathy.

Empathy means putting self in a position of someone else and thinking as the later and reasoning suitable action.

13. Define spirituality.

Spirituality raises a man above the materialistic world into a realm where he seeks peace and real happiness.

14. Define Integrity?

Integrity is the bridge between responsibility in private and professional life.

15. Define Compromise?

In a negative sense it means to undetermined integrity by violating one's fundamental moral principles.

In a positive sense, however, it means to settle differences by mutual concessions or to reconcile conflicts through adjustments in attitude and conduct.

16. Give the two aspects of Honesty?

Truthfulness – meeting responsibilities concerning truth-telling.

Trustworthiness – Meeting responsibilities concerning trust.

17. Differentiate Self-respect and Self-esteem?

Self-respect: It is a moral concept; refers to the virtue properly valuing oneself.

Self-esteem: It is a psychological concept; means having a positive attitude toward oneself, even if the attitude is excessive or otherwise unwarranted.

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2 MARKS QUESTIONS AND ANSWERS

UNIT - II

1. Define Ethics?

* Study of right or wrong.
* Good and evil.
* Obligations & rights.
* Justice.
* Social & Political deals.

2. Define Engineering Ethics?

* Study of the moral issues and decisions confronting individuals and organizations engaged in engineering / profession.
* Study of related questions about the moral ideals, character, policies and relationships of people and corporations involved in technological activity.
* Moral standards / values and system of morals.

3. What is the need to study Ethics?

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

4. Differentiate Moral and Ethics?

MORAL:

- Refers only to personal behavior.
- Refers to any aspect of human action.
- Social conventions about right or wrong conduct.

ETHICS:

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

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

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

6. What are the Senses of Engineering Ethics?

- o An activity and area of inquiry.
- o Ethical problems, issues and controversies.
- o Particular set of beliefs, attitudes and habits.
- o Morally correct.

7. Differentiate Micro-ethics and Macro-ethics?

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

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

8. What are the three types of Inquiry?

- ▪ Normative Inquiry – Based on values.
- ▪ Conceptual Inquiry – Based on meaning.
- ▪ Factual Inquiry – Based in facts.

9. What are the sorts of complexity and murkiness that may be involved in moral situations?

- ♣ Vagueness
- ♣ Conflicting reasons
- ♣ Disagreement

10. What are the steps in confronting Moral Dilemmas?

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

11. Define Moral Autonomy?

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

12. Give the importance of Lawrence Kohlberg's and Carol Gilligan's theory?

Kohlberg gives greater emphasis to recognizing rights and abstract universal rules.

Gilligan stresses the importance of maintaining personal relationships based on mutual caring.

13. Give the need for Authority?

Authority provides the framework in which learning can take place.

14. What are the criteria required for a Profession?

- Knowledge
- Organization
- Public Good

15. Give the general criteria to become a Professional engineer?

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

16. Define Integrity?

Integrity is the bridge between responsibility in private and professional life.

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Self-esteem: It is a psychological concept; means having a positive attitude toward oneself, even if the attitude is excessive or otherwise unwarranted.

20. What are the two forms of Self-respect?

a. Recognition self-respect

b. Appraisal self-respect

21. What are the senses of Responsibility?

a. a virtue

b. obligations

c. general moral capacities of people

d. liabilities and accountability for actions

e. blameworthiness or praiseworthiness

22. When will you tell an Act as an involuntary one?

* Act done in ignorance

* Act performed under compulsion

23. What are the types of Theories about Morality?

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

24. Differentiate Hypothetical imperatives and Moral imperatives?

Hypothetical imperatives are based on some conditions whereas Moral imperatives wont based on some condition.

25. State Rawl's principles?

(1) Each person is entitled to the most extensive amount of liberty compatible with an equal amount for others.

(2) Differences in social power and economic benefits are justified only when they are likely to benefit everyone, including members of the most disadvantaged groups.

26. Give the various tests required to evaluate the Ethical Theories?

- Theory must be clear, and formulated with concepts that are coherent and applicable.
- It must be internally consistent in that none of its tenets contradicts any other.
- Neither the theory nor its defense can rely upon false information.
- It must be sufficiently comprehensive to provide guidance in specific situations of interests to us.
- It must be compatible with our most carefully considered moral convictions about concrete situations.

27. Give the drawbacks of Utilitarianism?

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

28. Give the drawback of Duty Ethics?

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

29. Give the drawbacks of Rights Ethics?

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

30. Differentiate Ethical Relativism and Ethical Egoism?

Ethical egoism – the view that right action consist in producing one's own good.

Ethical relativism – the view that right action is merely what the law and customs of one's society require.

31. Define Ethical Pluralism?

Ethical pluralism is the view that there may be alternative moral perspectives that are reasonable, but no one of which must be accepted completely by all rational and morally concerned persons.

32. Define Religion?

A religion is any set of articles of faith together with the observances, attitudes, obligations and feelings tied up therewith, which, in so far as it is influential in a person, tends to perform two functions, one social and the other personal.

33. Give the uses of Ethical Theories?

- In understanding moral dilemmas
- Justifying professional obligations and ideals
- Relating ordinary and professional morality

34. What are personal ethics and business ethics?

Personal ethics deals with how we treat others in our day- to- day lives. Business ethics deals with the desired norms of behavior that pertain to commercial transactions.

35. What do you mean by normative ethics?

Normative ethics deals with the professional codes of ethics that specify role norms or obligations that professions attempt to enforce. It is the recommendations of standards and guidelines for morally right or good behavior.

36. What is descriptive ethics or non-normative ethics?

Descriptive ethics deals with the factual investigation of moral behavior and beliefs ie., the study not of what people ought to do but how they reason and how they act.

37. Mention some universally accepted ethical principles.

- Honesty
- Integrity
- Fulfilling commitments
- Abiding by agreements in both letter and spirit
- Willing to admit mistakes
- Being caring and compassionate
- Having respect for human dignity

38. What do you mean by ethical subjectivism?

Ethical subjectivism argues that what is ethically right or wrong for the individual depends on the ethical principles he/she has chosen. In other words, for people who subscribe to ethical subjectivism what is ethically right or wrong is entirely a personnel matter.

39. What are the steps in confronting moral dilemmas?

*Identify the relevant moral factors and reasons

*Gather all available facts that are pertinent to the moral factors involved.

*Rank the moral considerations in order of importance as they apply to the situation.

*Consider alternative course of action as ways of resolving the dilemma, tracing the full implications of each.

*Talk with the colleagues seeking their suggestions and alternative perspectives on the dilemma.

*Arrive at a carefully reasoned judgment by weighing all the relevant factors and reasons in light of the facts.

40. What is tacit-ethic and Meta -ethics?

- Tacit ethic deals with the unsaid or unspoken rule of practice.
- Meta-ethics deals with theories about ethics.

41. What is moral autonomy?

Moral autonomy can be viewed as the skill and habit of thinking rationally about ethical issues on the basis of moral concern.

42. What do you mean by a sociopath?

Sociopath lack a sense of moral concern and guilt, and can never be morally autonomous no matter how independent their intellectual reasoning about ethics maybe.

43. What are the attributes to a profession?

The attributes to a profession are:

*Knowledge
*Organization
*Public good

44. What are the two models of a professional society?

The two models of a professional society are:

*Social contract model
*Business model

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2 MARKS QUESTIONS AND ANSWERS

UNIT - III

1. What are the conditions required to define a valid consent?
   - The consent was given voluntarily.
   - The consent was based on the information that rational person would want, together with any other information requested, presented to them in understandable form.
   - The consenter was competent to process the information and make rational decisions.

2. What are the two main elements which are included to understand informed consent?

   Informed Consent is understood as including two main elements:

   i. Knowledge [Subjects should be given not only the information they request, but all the information needed to make a reasonable decision].

   ii. Voluntariness [Subjects must enter into the experiment without being subjected to force, fraud, or deception].

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

   a. Conscientiousness.

   b. Comprehensive perspective.

   c. Autonomy.

   d. Accountability.

4. What is the purpose of various types of standards?

   a. Accuracy in measurement, interchangeability, ease of handling.

   b. Prevention of injury, death and loss of income or property.

   c. Fair value of price.

   d. Competence in carrying out tasks.

   e. Sound design, ease of communications.

   f. Freedom from interference.

5. Define Code?

Code is a set of standards and laws.

6. Enumerate the roles of codes?

- ♣ Inspiration and Guidance
- ♣ Support
- ♣ Deterrence and Discipline
- ♣ Education and Mutual Understanding
- ♣ Contributing to the Profession's Public Image
- ♣ Protecting the Status Quo
- ♣ Promoting Business Interests

7. Give the limitations of codes?

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

8. What are the problems with the law in engineering?

a. Minimal compliance

b. Many laws are without enforceable sanctions.

9. What is the need to view engineering projects as experiments?

i. Any project is carried out in partial ignorance.

ii. The final outcomes of engineering projects, like those of experiments, are generally uncertain.

iii. Effective engineering relies upon knowledge gained about products before and after they leave the factory – knowledge needed for improving current products and creating better ones.

10. Differentiate scientific experiments and engineering projects?

Scientific experiments are conducted to gain new knowledge, while "engineering projects are experiments that are not necessarily designed to produce very much knowledge".

11. What are the uncertainties occur in the model designs?

a. Model used for the design calculations.

b. Exact characteristics of the materials purchased.

c. Constancies of materials used for processing and fabrication.

d. Nature of the pressure, the finished product will encounter.

12. Comment on the importance of learning from the past, using Titanic disaster, as an example**?**

The *Titanic* lacked a sufficient number of lifeboats.

13. Comment on the importance of learning from the past, using the nuclear reactor accident at Three Mile Island, as an example?

Values are notorious for being among the least reliable components of hydraulic systems.It was a pressure relief valve, and lack of definitive information regarding its open or shut state. Similar Malfunctions had occurred with the identical values on nuclear reactors because of the same reasons at other locations, but no attention had been given to them

14. Give any two prominent features of contemporary engineering practice that differentiate casual influence and moral accountability in engineering?

Large-scale engineering projects involve fragmentation of work.

Due to the fragmentation of the work, the accountability will spread widely within an organization.

There is frequently pressure to move on to a new project before the current one has been operating long enough to be observed carefully.

The contagion of malpractice suits currently afflicting the medical profession is carrying over into engineering.

15. Are SRBs inherently too dangerous to use on manned spacecraft? If so, why are they part of the design?

Yes, since they have the disadvantage that once the fuel is lit, there is no way to turn the booster off or even to control the amount of thrust produced.

SRBs were used instead of safer liquid fueled boosters because they required a much smaller research-and-development effort. Numerous other design changes were made to reduce the level of research and development required.

16. Under what conditions would you say it is safe to launch a shuttle without an escape mechanism for the crew?
    - Design specifications $\geq 31^0$F
    - Have given valid consent
    - Instead of rubber, steel billets for O-rings
    - Liquid fueled boosters instead of Solid rocket boosters

17. In your opinion, was the 'Right for informed consent' of the astronauts of Space Shuttle Challenger respected?

    No.

18. Define Ethical Conventionalism?

Ethical conventionalism is the view that a particular set of conventions, customs, or laws is self-certifying and not to be questioned as long as it is the set in force at a given time or for a given place.

19. State Babylon's Building Code?

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

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2 MARKS QUESTIONS AND ANSWERS

UNIT - IV

1. Define Risk?

   A risk is the potential that something unwanted and harmful may occur.

   Risk = Probability X Consequences.

2. Define a Disaster?

   A DISASTER = A seriously disruptive event + A state of unprepared ness.

3. Give the criteria which helps to ensure a safety design?

- ❒ The minimum requirement is that a design must comply with the applicable laws.
- ❒ An acceptable design must meet the standard of "accepted engineering practice."
- ❒ Alternative designs that are potentially safer must be explored.
- ❒ Engineer must attempt to foresee potential misuses of the product by the consumer and must design to avoid these problems.
- ❒ Once the product is designed, both the prototypes and finished devices must be rigorously tested.

4. What are the factors for safety and risk?
   - Voluntary and Involuntary risk
   - Short-term and Long-term risk
   - Expected probability
   - Reversible effects
   - Threshold levels to risk
   - Delayed or Immediate risk etc

5. What are the drawbacks in the definition of Lawrence?
   - ◎ Underestimation of risks
   - ◎ Overestimation of risks
   - ◎ No estimation of risks

5. Give the categories of Risk?
   - ★ Low consequence, Low probability (which can be ignored)
   - ★ Low consequence, High probability
   - ★ High consequence, Low probability
   - ★ High consequence, High probability
6. What are the factors that affect Risk Acceptability?
   - Voluntarism and control
   - Effect of information on risk assessment
   - Job related pressures
   - Magnitude and proximity of the people facing risk

7. What is the knowledge required to assess the risk?
   - Data in design
   - Uncertainties in design
   - Testing for safety
   - Analytical testing
   - Risk-benefit analysis

8. What are the analytical methods?
   - Scenario analysis
   - Failure modes & effect analysis
   - Fault tree analysis
   - Event tree analysis etc.

9. What are the three conditions referred as safe exit?
   - Assure when a product fails it will fail safely.
   - Assure that the product can be abandoned safely.
   - Assure that the user can safely escape the product.

10. How will an engineer assess the safety?

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

11. What are the reasons for Risk-Benefit Analysis?

i. Risk-benefit analysis is concerned with the advisability of undertaking a project.

ii. It helps in deciding which design has greater advantages.

iii. It assists the engineers to identify a particular design scores higher with that of the another one.

12. Are the engineers responsible to educate the public for safe operation of the equipment? How?

Yes, as per the engineers are concerned with they should have their duty as to protect for the safety and well being of the general public. Analyzing the risk and safety aspects of their designs can do this.

13. Define Safety?

In the definition stated by William W. Lawrence safety is defined, as a thing is safe if its risks are acceptable. A thing is safe with respect to a given person or group, at a given time, if its risk is fully known, if those risks would be judged acceptable, in light of settled value principles. In the view of objective, safety is a matter of how people would find risks acceptable or unacceptable.

14. What is the definition of risks?

A risk is the potential that something unwanted and harmful may occur. Risk is the possibility of suffering harm or loss. It is also defined as the probability of a specified level of hazardous consequences, being realized. Hence Risk (R) is the product of Probability (P) and consequence(C) (i.e)

$R = P * C$

15. Define Acceptability of risks?

A risk is acceptable when those affected are generally no longer apprehensive about it. Doubtfulness depends mainly on how the people take the risk or how people perceive it.

16. What are the safety measures an engineer must know before assessing a risk of any product?

The factors are:

a. Does the engineer have the right data?

b. Is he satisfied with the present design?

c. How does he test the safety of a product?

d. How does he measure and weigh the risks with benefits for a product.

17. What is the use of knowledge of risk acceptance to engineers?

Though past experience and historical data give better information about safety of products designing there are still inadequate. The reasons are

a. The information is not freely shared among industries

b. There also new applications of old technologies that provides available data, which are less useful.

c. So, in order to access the risk of a product, the engineers must share their knowledge and information with others in a free manner.

18. What is meant by Disaster? Give an example.

A disaster does not take place until a seriously disruptive event coincides with a state of insufficient preparation. Example: The Titanic collision with an iceberg constituted an emergency, which turned into a disaster because there were too few lifeboats.

19. What are the positive uncertainties in determining risks?

There are three positive uncertainties. They are:

a. Purpose of designing

b. Application of the product

c. Materials and the skill used for producing the product.

20. What is the use of Risk-Analysis? What are the three factors involved here?

Risk Analysis is used for the assessment of the hazardous associated with an industrial or commercial activity. It involves identifying the causes of unwanted hazardous events and estimating the consequences and likelihood of these events. Three factors involved in this are:

a. Hazard Identification

b. Consequences analysis

c. Probability estimation.

21. Define Risk-Benefit Analysis?

Risk benefit analysis is a method that helps the engineers to analyze the risk in a project and to determine whether a project should be implemented or not. In risk benefit analysis, the risks and benefits of a product are allotted to money amounts, and the most benefit able ratio between risks and benefits is calculated.

22. Explain the two types of Risk?

i. Personal Risk:

An individual, who is given sufficient information, will be in a position to decide whether to take part in a risky activity or not. They are more ready to take on voluntary risks than involuntary risks.

ii. Public Risks:

Risks and benefits to the public are more easily determined than to individuals, as larger number of people is taken into account. Involuntary risks are found here.

23. What does Strict Liability mean?

Strict liability means if the sold product is defective; the manufacturer concerned is liable for any harm that results to users. Negligible is not at all an issue based.

24. Give the reasons for the Three Mile Island disaster?

i. Inadequate training to the operators.

ii. Use of B & W reactors.

25. What is the main barrier to educational attempts?

An important barrier to educational attempt is that people belief change slow and are extraordinarily resistant to new information.

26. What happens to the products that are not safe?

Products that are not safe incur secondary costs to the manufacturer beyond the primary costs that must also be taken into account costs associated with warranty expenses, loss of customer will and even loss of customers and so.

27. What does Open-mindedness refer to?

Open-mindedness refers once again not allowing a preoccupation with rules to prevent close examination of safety problems that may not be covered by rules.

28. What was the problem in the Chernobyl reactor?

The problem was that,

The output was maintained to satisfy an unexpected demand.

The control device was not properly reprogrammed to maintain power at the required level.

Instead of leaving fifteen control rods as required, the operators raised almost all control rods because at the low power level, the fuel had become poisoned.

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2 MARKS QUESTIONS AND ANSWERS

UNIT – IV-B

1. Define Collegiality?

Collegiality is a kind of connectedness grounded in respect for professional expertise and in a commitment to the goals and values of the profession and collegiality includes a disposition to support and cooperate with one's colleagues.

2. What are the central elements of collegiality?

i. Respect

ii. Commitment

iii. Connectedness

iv. Cooperation

3. What are the two senses of Loyalty?

i. Agency Loyalty – Acting to fulfill one's contractual duties to an employer. It's a matter of actions, whatever its motives.

ii. Identification Loyalty – Has as much as to do with attitudes, emotions, and a sense of personal identity as it does with actions.

4. When may an Identification Loyalty be said as obligatory?

i. Employees must see some of their own important goals as met by and through a group in which they participate.

ii. Employees must be treated fairly, each receiving his or her share of benefits and burdens.

5. What is the relationship between the Loyalty to the company and Professional responsibility to the public?

i. Acting on professional commitments to the public can be a more effective way to serve a company than a mere willingness to follow company orders.

ii. Loyalty to companies or their current owners should not be equated with merely obeying one's immediate supervisor.

iii. An engineer might have professional obligations to both an employer and to the public that reinforce rather than contradict each other.

6. . Define Institutional Authority?

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

7. Define Expert Authority?

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

8. What is the basic moral task of salaried engineers?

The basic moral task of salaried engineers is to be aware of their obligations to obey employers on one hand and to protect and serve the public and clients of the other.

9. What are the guidelines to reach an agreement?

i. Attack problem and not people.

ii. Build trust.

iii. Start with a discussion and analysis of interests, concerns, needs. It begin with interests, not positions or solutions.

iv. Listen.

v. Brainstorm; suggesting an idea does not mean one aggress with it. Develop multiple options.

vi. Use objective criteria whenever possible. Agree on how something will be measured.

10. Define confidential information?

Confidential information is information deemed desirable to keep secret.

11. What are the criteria for identifying that information is “labeled” confidential at the workplace?

* Engineers shall treat information coming to them in the course of their as confidential.

* Identify any information which if it became known would cause harm to the corporation or client.

* Confidential information is any information that the employer or client would like to have kept secret in order to compete effectively against business rivals.

12. What are the terms associated with Confidentiality?

i. Privileged Information

ii. Proprietary Information

iii. Patents

iv. Trade secrets

13. How will you justify the obligation of confidentiality?

The obligation of confidentiality can be justified at two levels.

FIRST Level : Moral Considerations

Respect for autonomy

Respect for promises

Regard for public well-being

SECOND Level : Major Ethical Theories

Rights Ethicists

Duty Ethicists

Rule-utilitarians

Act-utilitarians

14. Define Conflicts of Interest?

Conflict of interests is a situation in which two or more interests are not simultaneously realizable. It is the disagreement between public obligation and self-interest of an official.

15. Why does a conflict of interests arise?

a. Financial Investments

b. Insider Trading

c. Bribe

d. Gifts

e. Kickbacks

16. What is a Bribe?

A Bribe is a substantial amount of money or goods offered beyond a stated business contract with the aim of winning an advantage in gaining or keeping the contract.

17. What is a Gift?

Gifts are not bribes as long as they are small gratuities offered in the normal conduct of business.

18. What is called Kickbacks?

Prearranged payments made by contractors to companies or their representatives in exchange for contracts actually granted are called kickbacks.

19. What are the types of Conflicts of interest?

i. Actual conflict of interest

ii. Potential conflict of interest

iii. Apparent conflict of interest

20. What are the forms of Conflicts of interest?

i. Interest in other companies

ii. Moonlighting

iii. Insider information

21. How will you solve the Conflict problems?

i. Finding the creative middle way.

ii. Employing Lower-level considerations.

iii. Making the hard choice.

22. What is called 'White-collar crime'?

Occupational crimes are illegal acts made possible through one's lawful employment. It is the secret violation of laws regulating work activities. When committed by office workers of professionals, occupational crime is called 'white-collar crime'.

23. What are the essential elements of IPR?

i. Patents

ii. Copyrights

iii. Trademarks

iv. Trade secrets

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2 MARKS QUESTIONS AND ANSWERS

UNIT – V

1. What is meant by moral leadership?

 Whenever the goals of a leader become permissible and also morally valuable, it is known as moral leadership.

 Moral leadership also means that employing morally acceptable ways to motivate the groups to move towards morally desirable ways. The ways are depending on the situations.

2. What are the questions that arise while considering the voluntary service in the field of Engineering?

 The following questions arise:

 should engineering profession encourage rendering voluntary services with out fees or at moderate fees?

 Do the engineering professional societies really need this?

3. What is code of ethics?

 o Code of ethics is a frame work for arriving at good ethical choices.

 o The code of ethics establishes a frame work for ethical judgment for any profession.

 o A code of ethics does not develop new moral principles.

4. What are the common features involved in the code of ethics for 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.

 Engineers shall avoid deceptive acts in the solicitation of professional employment.

5. Differentiate eyewitness and expert witness?

Eye Witnesses	Expert Witnesses
Eyewitnesses give evidences in the court about what they have seen actually.	Expert witnesses are allowed larger freedom in giving evidence on facts in there areas of expertise on explaining facts in commenting on the views of the expert witnesses of the opposite side and also in reporting on the professional standards

6. What is the need for Honesty?

Honesty is necessary to avoid deceiving and to be frank in giving all the relevant facts. It is also necessary to be truthful in interpreting the facts. Honesty in technical data is essential to be honest in engineer's role and for the values guiding his studies.

7. What is meant by Competence?

Competence means being well trained and having proper experience in the relevant field and also having the required additional skills planning and policy making.

8. What does Diligence mean?

Diligence means carrying out the given job carefully and in a prompt way.

9. Define Loyalty?

Loyalty refers to serving the interests of the clients. It includes avoiding conflicts of interests maintaining confidentiality and expressing concern for the interest of the clients.

10. What is the basic ethical and moral responsibility of a manager-engineer?

Ethical responsibility:

The basic ethical responsibilities of managers are to produce a good product or valuable service, only after taking into consideration maintaining respect for human beings, which includes customers, employees and the general public.

Moral responsibility:

As managers, engineer's moral responsibility is to produce safe and useful products that are also profitable.

11. .What are the different ways to create an ethical climate?

The following are the ways to create an ethical climate:

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

12. What are the important forms of conflicts that may arise for an engineering project manager?

The important forms of conflicts that may arise for an engineering project manager are,

- Conflicts based on schedules.
- Conflicts which arises in evolving the importance of projects and the department.
- Conflicts based on availability of personal for a project.
- Conflicts over technical matters.
- Conflicts which arises due to administrative procedure.
- Conflicts of personality.
- Conflicts over cost or expenditure.

13. What are the principles for conflict resolution?

The following are the principles for conflict resolution:

- People must be separated from the problem
- Focus must be only on interest and not on positions
- Various options must be generated
- An evolution criteria should be established

14. Who are referred as consulting engineers?

Consulting engineers are those involved in private practice. For the services rendered by them, they will be paid some fees. They won't be compensated by salaries from employers. They are the sole employer of their practice. So they have greater freedom to take decisions on the tasks undertaken by them.

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

The rules framed by NSPE (National Society of Professional Engineers) in case of professional advertisements are as follows:

- The use of statements containing a material misrepresentation of fact or omitting a material fact necessary to keep the statement from being misleading.
- Statements intended or likely to create an unjustified expectation.
- Statements containing prediction of future success.
- Statements containing an opinion as to the quality of the engineer's services.

Statements intended or likely to attract clients by the use of slogans, jingles or sensational language format.

16. What do you mean by appropriate technology?

Appropriate technology means identification, transformation and implementation of the most suitable technology for a new set of conditions.

17. What are the ill effects of acid rain?

Bacteria's that are essential for life systems to be active are killed.
High acidity results in reduced growth and killing of fishes.
Vanishing of greenery and destruction of forests.
Germination of seeds is affected affecting the growth of trees.

18. What do you mean by technology transfer?

Technology transfer is a process of changing the technology to a new setting and implementing it. Technology includes hardware such as machines and installations as well as techniques such as technical, organizational and managerial skills and procedures.

19. What are the ethical issues or questions that arise in environmental protection?

Often the questions that arise in the ethical issues are,

Who is affecting?

Who are affected?

Does the environment gets disturbed?

When do the disturbances takes place and how does it happen?

20. Quote some examples of pollution that spoiled the environment?

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

21. What is computer ethics?

Computers contribute to a variety of moral problems. In order to evaluate and act appropriately with such problems, a new field of applied ethics termed as 'computer ethics' has been developed.

22. Give any ten commandments of computer ethics?

a. Don't use a computer to harm other people.
b. Don't interfere with other people's computer works.
c. Don't snoop around in other people's computer files.
d. Don't use a computer to steal.
e. Don't use a computer to bear false witness.

23. What is hacking?

When computers are the main objects of an unethical act, it will create some ethical issues. This kind of act is called hacking.

24. What is autonomous computer?

The autonomy of computers means the ability of computer to make decisions without the interference of human beings. This autonomous function of computers creates a lot of implication.

25. What are the three versions of Relativism?

i. Ethical Relativism

ii. Descriptive Relativism

iii. Moral Relativism

26. What are the moral dimensions of an Engineer-manager?

a. Information rights and obligation

b. Property rights

c. Accountability and control

d. System quality

e. Quality of life

27. Give any ten International rights suggested by Donaldson?

I. The right to freedom of physical movement.
II. The right to ownership of property.
III. The right to freedom from torture.
IV. The right to a fair trial.
V. The right to nondiscriminatory treatment.
VI. The right to physical security.
VII. The right to freedom of speech and association.
VIII. The right to minimal education.
IX. The right to political participation.
X. The right to subsistence.

28. What are the reasons for the disaster at Bhopal?

1. The tanks used to store Methyl Iso-cyanate were overloaded to a tune of 75%.
2. The emergency plant was also filled with a large amount of chemicals.
3. The entire refrigeration unit had been shutdown as a measure to reduce the cost and this led to increase of temperatures to a higher level.
4. One of the disappointed workers unscrewed a pressure gauge on a tank and inserted a hosepipe into it, knowing that it would cause damage, but not to this extent.
5. Scrubber has also been shut down.
6. Flare tower was also not in an operating condition.
7. Unfortunately there were no emergency drills or evacuation plants available.

29. Give some of the Environmental issues of concern to engineers?

a. Releasing harmful substance into air and water.

b. Using toxic substance in food processing.

c. Disturbing land and water balances.

30. What are the issues in Computer ethics?

Power Relationship

- Job Elimination
- Customer Relations
- Biased Software
- Stock Trading
- Unrealistic Expectations
- Political Power
- Military Weapons

Property

- Embezzlement
- Data and Software

Privacy

- Cyber crimes
- Computer Virus
- Techno stress
- Cyber Scams and Frauds
- Internet Defamation
- Software Piracy
- Cyber Squatting
- Inappropriate Access
- Data Bank Errors
- Hackers
- Legal Responses

Professional Issues

- Computer Failures
- Computer Implementation
- Health conditions

31. What are the problems of Defense industry?

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

32. What are ways to promote an Ethical climate?

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

33. What are the important forms of Conflicts?

- Conflicts based on schedules
- Conflicts which arises in evolving the importance of projects and the department.
- Conflicts based on the availability of personal for a project.
- Conflicts over technical matters.
- Conflicts arise due to administrative procedure.
- Conflicts of personality.
- Conflicts over cost or expenditure or money.

34. What are the Principles of Conflicts of interest?

- Separate people from the problem.
- Focus on interest and not on positions.
- Generate a variety of possibilities before deciding what to do.
- Insist that the result be based on some objective standard.

35. What are the normative models to be used to avoid conflicts?

- Hired Guns
- Value-neutral Analysts
- Value-guided Advocates

36. What are the characteristics of an engineer as expert advisers in public planning and policy making?

- ⇔ Honesty
- ⇔ Competence
- ⇔ Diligence
- ⇔ Loyalty

37. How can Deceptive advertising be done?

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

38. Give the usage of the code of conduct?

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

39. What are professional issues of using computers?

a. Computers failures
b. Computer implementation
c. Health conditions

40. What are the requirements of Patents?

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

40. What are the types of Patents?

a. Utility patents

b. Design patents

c. Plant patents

41. What is the need for Protection to IPR?

a) Prevent plagiarism.

b) Prevent others using it.

c) Prevent using it for financial gain.

d) Fulfill as an obligation to funding agency.

e) Support income generation strategy.

42. What is the Importance of IPR?

a. Give the inventors exclusive rights of dealing.

b. Permit avoiding pf competitors and raise entry barriers.

c. Permit entry to a technical market.

d. Generate steady income by issuing license.

43. What is a Trade secret?

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

44. Define Whistle Blowing?

Whistle-blowing is alerting relevant persons to some moral or legal corruption, where "relevant persons" are those in a position to act in response, if only by registering protest. i.e. the employee disclosure of an employer's illegal or illegitimate practices to persons or organizations that may be able to take corrective actions. The conditions to be met for whistle-blowing are

a. Need

b. Proximity

c. Capability

d. Last resort

45. What are the main features of Whistle Blowing?

a. Act of disclosure

b. Topic

c. Agent

d. Recipient

46. Differentiate External Whistle Blowing and Internal Whistle Blowing?

External Whistle Blowing – Information is passed outside the organization.

Internal Whistle Blowing – Information is conveyed to someone within the organization.

47. Differentiate Open Whistle Blowing and Anonymous Whistle Blowing?

Open Whistle Blowing – Individuals openly reveal their identity as they convey the information.

Anonymous Whistle Blowing – Involves concealing one's identity.

48. When Whistle Blowing is morally permitted and morally obligated?

Whistle blowing is morally permitted when

i. If the harm that will be done by the product to the public is serious and considerable.

ii. If they make their concerns known to their superiors.

iii. If getting no satisfaction from their immediate supervisors, they exhaust the channels available within the corporation, including going to the board of directors.

Whistle is morally obligated when

i. He or she must have documented evidence that would convince a reasonable, impartial observer that his [or her] view of the situation is correct and the company policy wrong.

ii. There must be strong evidence that making the information public will in fact prevent the threatened serious harm.

49. What are the two general ways to apply ethical theories to justify the basic right of professional conscience?

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

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

50. Define Employee Rights?

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

51. Define Sexual Harassment?

Sexual Harassment means continuous annoying and attacks on men or women on the basis of sexual considerations. It also covers the harassment by female superiors on the male employees and sexual harassment of employees by superiors of the same sex.

It includes physical and psychological attacks, coercion, misuse of authority and a variety of undesirable and indecent actions.

52. Define Discrimination?

Discrimination means morally unjustified treatment of people on arbitrary or irrelevant grounds.

53. What are the general procedures for implementing the right to due process?

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

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

54. Differentiate Human Rights and Professional Rights?

Human Rights – Possessed by virtue of being people or moral agents.

Professional Rights – Possessed by virtue of being professional having spcial moral responsibilities.

55. Differentiate Weak Preferential Treatment and Strong Preferential Treatment?

Weak preferential treatment involves giving an advantage to members of traditionally discriminated-against groups over equally qualified applicants who are members of other groups.

Strong preferential treatment involves giving preference to minority applicants or women over better qualified applicants from other groups.

Part –B (16 marks)

Unit-I

1. Briefly discuss honesty as value.

Any human being should imbibe honesty-honesty in acts, honesty in speech and honesty in beliefs. Honesty is the fundamental virtue in human relationship even though in may be difficult to follow some times.

Lying:

Deliberation deception:

With holding the information:

Seeking the truth:

Maintaining confidentiality:

2. Write short notes on courage, co-operation.

Courage:

Courage is the tendency to face dangers and difficult jobs in rational ways and with self control. A person with the quality of courage has the following characteristics.

Continues to run with his job or business even there are certain disturbance.

Gets involved with new popular ideas

Discuss with others even when there is a problem.

Co-operation:

Co-operation means extending help to others, for a good cause. Co-operation may be through an idea, a suggestion, an assistance or physical work which extends to others for common benefit.

3. What is service learning? Differentiate service learning from civic virtue.

Service learning tells that one has moral responsibility to increase the desirable effects and to decrease the harmful effects. Any service should increase the desirable result. Good citizen demand civic virtue. It is the principle of not harming the surroundings .It also includes living peacefully, respect for others, protecting the environment and being normally and ethically good.

4. Distinguish values from ethics and culture.

Values are mainly related to individuals and since they are related to justice, they remain the some for every one. E.g. truth, honesty, empathy, self respect.

Values do not change from individual to individual. Ethics is common to a group of individuals; the group may be religious or professional. Ethics is mostly based on some code or law and judgment of any action is based on code of conduct or law. Ethics change from individual to individual

Culture commonly refers to conduct of a group. E.g system of worship, marriage

It may differ from society to society, nation to nation or religion to religion.

5. What do u understand by the term spirituality? Explain in detail.

Spirituality raises a man above the materialistic world into a realm where he seeks peace and real happiness

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S.Senthil kumar

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6. Define the terms Values, Morals & Ethics?

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

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

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

7. Define Human Values?

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

Timeless Human Values

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

Unit –II

1. Explain professions and professionalism.

Answer:

Professions : Knowledge, Organization, Public good.

Membership criteria

Professionalism as independence

Professionalism as serving employers

Qualities of professionals

Models of professional roles : Savior, Bureaucratic servant, Guardian, Social servant, Social enabler and catalyst, Game player.

Professional ideals and virtues : Professional responsibility—self-direction virtues, public-spirited virtues, teamwork virtues,proficiency virtues.

2. What do u understand by the term moral dilemma? Differentiate with moral autonomy.

MORAL:

- Refers only to personal behavior.
- Refers to any aspect of human action.
- Social conventions about right or wrong conduct

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

- ♣ Vagueness
- ♣ Conflicting reasons
- ♣ Disagreement

The steps in confronting Moral Dilemmas:

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

Moral autonomy:

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

3. Briefly explain the three main levels of moral development, developed by Laurence Kohlberg.

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Answer:

Level	Stage	Social orientation
Pre-conventional	1 2	Obedience and Punishment Individualism, instrumentalism and exchange
Conventional	3 4	Good boy/Good girl Law and Order
Post-conventional	5 6	Social contract Principled conscience

4. How did Gilligan recast Kohlberg's level of moral development?

Answer:

Kohlberg gives greater emphasis to recognizing rights and abstract universal rules. Gilligan stresses the importance of maintaining personal relationships based on mutual caring.

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Stage	Goal
Pre-conventional	Goal is individual survival
Conventional	Self-sacrifice is goodness
Post-conventional	Principle of nonviolence-do not hurt others

5. Explain with examples the various ethical theory available for "right of action"

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Answer:

Theories about right action:

Utilitarianism :most good for the most people

(Act utilitarianism and Rule utilitarianism)

Duty ethics :duties to respect persons

Rights ethics :human rights

Virtue ethics :virtues and vices

Drawbacks of Utilitarianism:

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

Drawback of Duty Ethics:

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

Drawbacks of Rights Ethics:

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

Uses of ethical theories:

*Resolving moral dilemmasss

*Justifying moral obligations

*Relating professional and ordinary morality

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

Answer:

Self-interest:

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

Customs:

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

Religion:

Divine command ethics-it says that an act is right means it is commanded by God, and to say it is wrong means it is forbidden by God.
Christianity--virtues of hope, faith and love.
Judaism --virtue of righteousness
Buddhism --virtue of compassion
God centered religion (theistic)—Judaism, Christianity, Islam.
Not emphasizing belief in God (non-theistic)—Buddhism-call for faith in Right path.

Unit III

1. i. Engineering projects can be viewed as social experiments. Compare them with standard experiments. In what ways are they similar and how do they differ?

ii. What are the four features of engineers as 'Responsible Experimenters'? Describe the contemporary threats?

P.No. 80 to 87 Engineering Ethics – Mike W. Martin & Roland Schinzinger

P.No. 89 to95 Engineering Ethics – Mike W. Martin & Roland Schinzinger

2.**i**. Describe the roles of "Codes of Ethics" of various professional engineering societies? Indicate the relative importance of the various categories of these roles.

ii. What are the limitations of these codes?

iii. List in brief the codes of ethics of the "Institution of Engineers (India)"?

P.No. 106 to 109- Engineering Ethics – Mike W. Martin & Roland Schinzinger

P.No. 109 to 111- Engineering Ethics – Mike W. Martin & Roland Schinzinger

P.No. 408 to 414- Engineering Ethics – Mike W. Martin & Roland Schinzinger

3. Explain Babylon's Building Code & The United States Steamboat Code?

P.No. 114 to 115- Engineering Ethics – Mike W. Martin & Roland Schinzinger

4.. Discuss the Industrial Standards?

P.No. 117 to 118- Engineering Ethics – Mike W. Martin & Roland Schinzinger

5. i. Explain the problems with the law in engineering?

ii. Explain the proper role of law in engineering?

P.No. 118 to 121- Engineering Ethics – Mike W. Martin & Roland Schinzinger

6. How do the functions of standards, regulations and laws differ from one another in their effects on engineering products and practice?

7. Explain Challenger case and then examine about the disaster if and how the principal actors in this tragedy behaved as responsible experimenters within the framework of the engineering-as-experimentation model? Under what conditions would you say it is safe to launch a shuttle without an escape mechanism for the crew? Discuss the role of the astronauts in shuttle safety. To what extent should they have involved themselves more actively in looking for safety design or operations?

P.No. 96 to 104- Engineering Ethics – Mike W. Martin & Roland Schinzinger

8.. Should owners of passenger cars be protected against extensive front-end damage to their cars when they or other authorized drivers back-end trucks or high-riding off-road vehicles that have incompatible (or no) bumpers? Are these standards governing bumper location? What do they say, and are they enforced?

9. A common excuse for carrying out a morally questionable project is "If I don't do it somebody else will." This rationale may be tempting for engineers who typically work in situations where someone else might be ready to replace them in on a project. Do you view it as a legitimate excuse for engaging in projects that might be unethical? Comment on the concept of responsible conduct developed?

10. Engineering and medical practice are intimately linked in medical engineering. Its products range from artificial limbs and organs to heart pacers and x-ray machines. Its engineers and medical experts are experimenters with excellent track records, but failures do occur. For example, the State University of New York at Albany admitted that its psychology department had conducted electroshock experiments on patients who were not given fair explanation of risks and whose consent had not been obtained. The machine itself was unsafe. Discuss the ethical implications of this case.

Unit-IV

1. Write short notes on Trade secrets, Patents, Trademarks, Copyrights?

A *Trade secret* is a secret formula, pattern, or device that is used in a business and provides a commercial advantage. Trade secrets are formulas, patterns, devices, or compilations of information, which are used in business to gain an advantage over competitors who do not possess the trade secret. Trade secrets must not be in the public domain and the secrecy must be protected by the firm, because trade secrets are not protected by patents.

Patents are documents issued by the government that allow the owner of the patent to exclude others from making use of the patented information for twenty years from the date of filing. To obtain a patent, the invention must be new, useful, and non-obvious.

Trademarks are words, phrases, designs, sounds or symbols associated with goods or services.

Copyrights are rights to creative products such as books, pictures, graphics, sculpture, music, movies, and computer programs. It protects the expression of the ideas, but not the ideas themselves.

2. Define Whistle Blowing?

Whistle-blowing is alerting relevant persons to some moral or legal corruption, where "relevant persons" are those in a position to act in response, if only by registering protest. i.e. the employee disclosure of an employer's illegal or illegitimate practices to persons or organizations that may be able to take corrective actions. The conditions to be met for whistle-blowing are

e. Need
f. Proximity
g. Capability
h. Last resort

3.How does the engineer act to safeguard the public from risk?

- Provide the background material to support or to prove the faulty positions and actively take part in the debate.
- Act as the model of a science court.
- Record the statistics with caution i.e. give reasonable numbers.
- Measure the risks and benefits on a relative scale rather than absolute scale

4.Give the criteria which helps to ensure a safety design?

- The minimum requirement is that a design must comply with the applicable laws.
- An acceptable design must meet the standard of "accepted engineering practice."
- Alternative designs that are potentially safer must be explored.

- ❒ Engineer must attempt to foresee potential misuses of the product by the consumer and must design to avoid these problems.
- ❒ Once the product is designed, both the prototypes and finished devices must be rigorously tested.

5.How will an engineer assess the safety?

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

6.Explain in detail about Safety & Risk?

P.No.129-Engineering Ethics – Mike W. Martin & Roland Schinzinger

7 Explain the effect of information on risk assessment?

P.No.134-Engineering Ethics – Mike W. Martin & Roland Schinzinger

8.Conduct Fault Tree Analysis for the Water System?

P.No.149-Engineering Ethics – Mike W. Martin & Roland Schinzinger

9.Explain the assessment of Safety & Risk?

P.No.141-Engineering Ethics – Mike W. Martin & Roland Schinzinger

10.Explain RBA? How will you reduce Risk?

P.No.153-Engineering Ethics – Mike W. Martin & Roland Schinzinger

11.Explain Three Mile Island Case?

P.No.168-Engineering Ethics – Mike W. Martin & Roland Schinzinger

12.Explain Chernobyl Case?

P.No.173-Engineering Ethics – Mike W. Martin & Roland Schinzinger

13.Explain Collegiality & Loyalty?

P.No.189- Engineering Ethics – Mike W. Martin & Roland Schinzinger

14.Discuss about the respect for authority?

P.No.196- Engineering Ethics – Mike W. Martin & Roland Schinzinger

15.Explain Collective Bargaining?

P.No.202- Engineering Ethics – Mike W. Martin & Roland Schinzinger

Unit-V

1. Enumerate the 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.

2. Explain the Bhopal Plant Case?

P.No.299- Engineering Ethics – Mike W. Martin & Roland Schinzinger

3. Discuss about Environmental Ethics?

P.No.304- Engineering Ethics – Mike W. Martin & Roland Schinzinger

4. Describe about Computer Ethics?

P.No.319- Engineering Ethics – Mike W. Martin & Roland Schinzinger

5. Write a note on Weapon Development?

P.No.332- Engineering Ethics – Mike W. Martin & Roland Schinzinger

6. Explain how should engineers act as managers, consultants, leaders?

P.No.350, 359, 375- Engineering Ethics – Mike W. Martin & Roland Schinzinger

7. Explain how should engineers act as expert witnesses & advisers?

P.No.367- Engineering Ethics – Mike W. Martin & Roland Schinzinger

8. Explain the various Global Issues?

P.No.290- Engineering Ethics – Mike W. Martin & Roland Schinzinger

9. Explain the various Sample Code of Conduct?

P.No.397- Engineering Ethics – Mike W. Martin & Roland Schinzinger

- ABET
- AAES
- NSPE
- IEEE
- CSI
- ASME
- ASCE
- Institute of Engineers
- Indian Institute of Materials Management
- IETE, India
- Other Professional Societies…

GE1301- PROFESSIONAL ETHICS & HUMAN VALUES

2 MARKS QUESTIONS AND ANSWERS

UNIT – V

25. What is meant by moral leadership?

 Whenever the goals of a leader become permissible and also morally valuable, it is known as moral leadership.

 Moral leadership also means that employing morally acceptable ways to motivate the groups to move towards morally desirable ways. The ways are depending on the situations.

26. What are the questions that arise while considering the voluntary service in the field of Engineering?

The following questions arise:

 should engineering profession encourage rendering voluntary services with out fees or at moderate fees?

 Do the engineering professional societies really need this?

27. What is code of ethics?

- Code of ethics is a frame work for arriving at good ethical choices.
- The code of ethics establishes a frame work for ethical judgment for any profession.
- A code of ethics does not develop new moral principles.

28. What are the common features involved in the code of ethics for 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.

Engineers shall avoid deceptive acts in the solicitation of professional employment.

29. Differentiate eyewitness and expert witness?

Eye Witnesses	Expert Witnesses
Eyewitnesses give evidences in the court about what they have seen actually.	Expert witnesses are allowed larger freedom in giving evidence on facts in there areas of expertise on explaining facts in commenting on the views of the expert witnesses of the opposite side and also in reporting on the professional standards

30. What is the need for Honesty?

Honesty is necessary to avoid deceiving and to be frank in giving all the relevant facts. It is also necessary to be truthful in interpreting the facts. Honesty in technical data is essential to be honest in engineer's role and for the values guiding his studies.

31. What is meant by Competence?

Competence means being well trained and having proper experience in the relevant field and also having the required additional skills planning and policy making.

32. What does Diligence mean?

Diligence means carrying out the given job carefully and in a prompt way.

33. Define Loyalty?

Loyalty refers to serving the interests of the clients. It includes avoiding conflicts of interests maintaining confidentiality and expressing concern for the interest of the clients.

34. What is the basic ethical and moral responsibility of a manager-engineer?

Ethical responsibility:

The basic ethical responsibilities of managers are to produce a good product or valuable service, only after taking into consideration maintaining respect for human beings, which includes customers, employees and the general public.

Moral responsibility:

As managers, engineer's moral responsibility is to produce safe and useful products that are also profitable.

35. .What is the different ways to create an ethical climate?

The following are the ways to create an ethical climate:

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

36. What are the important forms of conflicts that may arise for an engineering project manager?

The important forms of conflicts that may arise for an engineering project manager are,

- Conflicts based on schedules.
- Conflicts which arises in evolving the importance of projects and the department.
- Conflicts based on availability of personal for a project.
- Conflicts over technical matters.
- Conflicts which arises due to administrative procedure.
- Conflicts of personality.
- Conflicts over cost or expenditure.

37. What are the principles for conflict resolution?

The following are the principles for conflict resolution:

- People must be separated from the problem
- Focus must be only on interest and not on positions
- Various options must be generated
- An evolution criteria should be established

38. Who are referred as consulting engineers?

Consulting engineers are those involved in private practice. For the services rendered by them, they will be paid some fees. They won't be compensated by salaries from employers. They are the sole employer of their practice. So they have greater freedom to take decisions on the tasks undertaken by them.

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

The rules framed by NSPE (National Society of Professional Engineers) in case of professional advertisements are as follows:

- The use of statements containing a material misrepresentation of fact or omitting a material fact necessary to keep the statement from being misleading.
- Statements intended or likely to create an unjustified expectation.
- Statements containing prediction of future success.
- Statements containing an opinion as to the quality of the engineer's services.

Statements intended or likely to attract clients by the use of slogans, jingles or sensational language format.

40. What do you mean by appropriate technology?

Appropriate technology means identification, transformation and implementation of the most suitable technology for a new set of conditions.

41. What are the ill effects of acid rain?

Bacteria's that are essential for life systems to be active are killed.
High acidity results in reduced growth and killing of fishes.
Vanishing of greenery and destruction of forests.
Germination of seeds is affected affecting the growth of trees.

42. What do you mean by technology transfer?

Technology transfer is a process of changing the technology to a new setting and implementing it. Technology includes hardware such as machines and installations as well as techniques such as technical, organizational and managerial skills and procedures.

43. What are the ethical issues or questions that arise in environmental protection?

Often the questions that arise in the ethical issues are,

Who is affecting?

Who are affected?

Does the environment gets disturbed?

When do the disturbances takes place and how does it happen?

44. Quote some examples of pollution that spoiled the environment?

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

45. What is computer ethics?

Computers contribute to a variety of moral problems. In order to evaluate and act appropriately with such problems, a new field of applied ethics termed as 'computer ethics' has been developed.

46. Give any ten commandments of computer ethics?

f. Don't use a computer to harm other people.
g. Don't interfere with other people's computer works.
h. Don't snoop around in other people's computer files.
i. Don't use a computer to steal.
j. Don't use a computer to bear false witness.

47. What is hacking?

When computers are the main objects of an unethical act, it will create some ethical issues. This kind of act is called hacking.

48. What is autonomous computer?

The autonomy of computers means the ability of computer to make decisions without the interference of human beings. This autonomous function of computers creates a lot of implication.

49. What are professional issues of using computers?

d. Computers failures
e. Computer implementation
f. Health conditions

Part – B (16 marks)

1. Explain Gilligan's theory of moral development?

1.(a) What is meant by professional responsibility and discuss the theories about virtues?

Or

(b) Explain Moral disagreement, moral absolutism, moral relativism and moral pluralism?

2.(a) What are the aspects of engineering that make it appropriate to view engineering projects as experiments?

Or

(b) Describe in detail the concept of 'Risk-Benefit Analysis'.

3.(a) What is the importance of loyalty and collegiality in team work?

Or

(b) Discuss the ways and means of reducing occupational crime in industries?

4.(a) What is meant by computer ethics?

Or

(b) Discuss an engineer's involvement in weapons work.

5.i. Name, and very briefly each of the four 'Ethical Theories' (Theories about Right Action).

ii. Apply any three of these theories in resolving the following moral problem. Find if these theories lead to the same or different answers to the problem, and make your judgment about the right action.

Building of large dams across rivers, often leads to great benefit to the society, by providing stable supplies of irrigation and drinking water, flood control, power generation and recreational opportunities. However, these benefits often come at the cost of people who live in areas that will be flooded by the dam. They lose their homes, livelihood and are subjected to the trauma of drastic changes in their lives. It may also result in loss of prime forest, loss of already endangered species though with no current economic value, and loss of cultural treasures of historic value, which are going to be submerged.

6.a.i. Engineering projects (taken in their totality) can be viewed as social experiments. Compare them with standard experiments. In what ways are they similar and how do they differ? (10)

ii. What are the four features of engineers as 'Responsible Experimenters'? Describe very briefly the contemporary threats to any two of them. (6)

Or

6.b.i. Write a note on Risk-Benefit Analysis, including its conceptual difficulties? (6)

ii. Take any example of an engineered system in your area of specialization,. Construct fault tree analysis staring with the system failure at the top and working down to failures in various sub-systems, components, and outside factors or events that could have caused the problem. One or more events can be shown to be the cause for the event at the next level. Don't use the example given in the textbook. (10)

7.a.i. Describe the roles of "Codes of Ethics" of various professional engineering services. Indicate the relative importance of the various categories of these roles? (8)

ii. What are the limitations of these codes? (3)

iii. List in brief the Codes of Ethics of the 'Institution of Engineers (India)'? (5)

Or

7.b.i. Describe the ethical issues arising out of the multinational operation of co-operations. Illustrate the relevant ones using disaster at the Union Carbide plant at Bhopal, as an example?(8)

ii. Describe briefly the human-centric and eco-centric approaches to environmental ethics, and how engineers can deal with problems associated with environmental issues? (8)

8.a.i. Describe four important responsibilities of engineers to employees? (8)

ii. List the rights of engineers as employees. Describe one most important right? (4)

iii. Following is an example of conflict of interest between an employer and an employee. Explore it. (4)

Workers at a company are on strike over 'unsafe' working conditions. But, this claim, by the workers, is disputed by the company. The company offered to pay its engineers overtime and bonus to work during the workers strike. One of the engineers, whom the company considers to be part of the 'management', believes that the conditions 'may' be unsafe as the workers complain. But the extra money he gets through overtime and bonus could help him to clear some of the pending bills or to use as down payment for the car that he has been thinking to buy for a long time. There is also a fear that he may be fired if does not work. What should he do and why?

Or

9.b.i. Define 'Whistle-Blowing' and name its different types? (4)

ii. Which are the conditions that must be met for Whistle-Blowing to be morally acceptable? Also, what are the ways by which management can ethically prevent Whistle-Blowing'? (8)

iii. Examine the following and see if it is a right situation for Whistle-Blowing? (4)

A young engineer felt that the level of pollutants her company is pouring into a stream is dangerously high, considering the fact that children are using the river downstream for swimming. She expresses her view to her immediate supervisor. He said that her fears are baseless because the pollution caused no complaints in the past. Is she required to do more?

10.a.i. What do you understand by Moral Autonomy? Explain how it can be compatible (not in conflict) with consensus and authority, in the workplace, while on an engineering project? (6)

ii. State the six steps necessary in approaching (confronting) a moral dilemma? (6)

iii. Describe the three levels of moral development as suggested by Lawrence Kohlberg. To which level does a morally autonomous engineer belong? (4)

Or

10.b.i. How are safety and risk defined? (4)

ii. Write a note on how public assess risk, using their-own perception. The factors, which influence the risk perception by the public, should be part of the answer. (4)

iii. To achieve an optimal design, the engineer should have knowledge about the uncertainties associated with his design. Briefly describe all the methods by which an engineer can deal with these ncertainties towards minimizing risk. (8)

11.i) Briefly explain, some of the most commonly discussed cases of computer abuse (6)

ii) What is technology transfer and appropriate technology? (6)

iii) What are the areas, which illustrate some of the special responsibilities of consulting engineers? (4)

12.a) What are the important problems in Moral dilemmas? What are the main levels of moral development in the theories proposed by Lawrence Kohlberg and Carol Gilligan? Explain each one with an example?

OR

12.b) i) What are the functions and limitations of "Codes of Ethics"? (8)

ii) Is code of Ethics different from code of conduct? Explain. (8)

13.a) In the late 1960s. Ford designed a small car Pinto and brought it into market at a rapid pace. The gas tank was between the rear axle and the bumper. The prescribed rear impact tests have been conducted and the design was found to be alright. The gas tank caught fire at an impact very marginally higher that the value stipulated in the impact test.

Ford engineers calculated that paying the insurance claims of the accident victims would be much cheaper than changing the design at that stage. What responsibilities do engineers have in situations like this? Is it appropriate to undertake safety improvement at any cost?

OR

13.b) i) Explain in detail the effect of information on risk assessment? (8)

ii) Describe the concept of risk benefit analysis? (8)

14.a) Many accidents are caused by using cellular phones white driving. The risk of accident is four times greater when the driver is using the cell phone. This is the same as driving the car drunk. 23 countries have banned the use of cell phone while driving. Cell phones and the means of mounting them in automobiles are designed by engineers. What responsibility do engineers have regarding this problem?

OR

14.b) i What is an Intellectual Property Right? (2)

ii) Discuss briefly the various forms of Intellectual Property Rights? (14)

15.a) i) Write briefly on the sequence of events that occurred during the launch of the Challenger space ship? (8)

ii) Write briefly how the challenger disaster can be observed as a poor ethical episode with respect to the acts of (8)

1) deliberate deception
2) failure to seek out the truth
3) allowing one's judgment to be corrupted
4) engineers with no right to free speech

OR

15.b) A country engineer in Virginia demanded a 25% kickback in secret payments for highway works contract he issued. Allan Kammerer, a young Vice-President of a struggling consulting firm agreed to this condition. Allan cited that bringing work to his concern and retaining his employees is the main reason for the decision. Discuss the Normative or moral issues involved in this case.