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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2015/2016**

COURSE NAME : ENGINEERING TECHNOLOGY
ETHICS
COURSE CODE : DAK 11502
PROGRAMME : 3 DAK
EXAMINATION DATE : JUNE / JULY 2016
DURATION : 2 HOURS AND 30 MINUTES
INSTRUCTION : SECTION A) ANSWER **ALL**
QUESTIONS
SECTION B) ANSWER **THREE (3)**
QUESTIONS

THIS QUESTION PAPER CONSISTS OF **EIGHT (8)** PAGES

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1. Engineering ethics study is not related to
 - (A) Moral issues
 - (B) Moral decision
 - (C) Confronting certain individuals
 - (D) Health and medical laws
2. What is the point of studying engineering ethics?
 - (A) Increase ethical awareness
 - (B) Increase logical thinking
 - (C) Increase average human age
 - (D) Increase engineering job
3. Scope of engineering ethics includes
 - (A) Moral values
 - (B) Engineering as social experiment
 - (C) The engineers responsibility for safety
 - (D) All of the above
4. The correct fact about the Citicorp Building case was
 - (A) An engineer who falsify architectural documents
 - (B) Bolted joints were used instead of stronger welded joints
 - (C) The use of inferior materials which lead to structural failure
 - (D) Unethical purchase of a land owned by a church
5. The correct fact about the Challenger case was
 - (A) A rocket component which failed at sub cooled temperature
 - (B) A Thiokol engineer who concealed a design flaw
 - (C) A senior vice president who took off his engineering hat
 - (D) A rocket explosion due to a cold engine temperature
6. Ethical dilemma revolved around
 - (A) Potential harm to the government
 - (B) Benefits and dangers
 - (C) Equality among all humankind
 - (D) A choice or decision to be made
7. Steps for ethical problem solving includes
 - (A) Determine
 - (B) Identify
 - (C) None of the above
 - (D) (A) and (B)

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8. Decision making is mainly about
 - (A) Which law to be obeyed
 - (B) A thinking process to produce a final choice
 - (C) The difficulties of a decision making process
 - (D) Justifying reasons to all decisions

9. How to determine if there is an ethical issue or dilemma?
 - (A) If there is a conflict of personal values with responsibility
 - (B) If one issue is clearly outweigh another issue
 - (C) If nobody cares about an issue
 - (D) If the decision give a bad impression to the person involved

10. How to rank ethical values or ethical principles?
 - (A) By using win-win situation
 - (B) By neglecting any human interests
 - (C) By taking the safest route
 - (D) By good reasoning and then prioritizing one value/principle over another

11. The correct statement about safety is
 - (A) Every human demand safe product and services
 - (B) In some cases human need to pay for the safety
 - (C) Definition of safe is similar worldwide
 - (D) It is possible to have risk-free activities and products

12. What is safety?
 - (A) Achieving zero accident
 - (B) Focusing on design instead of hazard
 - (C) Free from human error
 - (D) Avoid working in a hazardous workplace

13. What is risk?
 - (A) Probability of becoming unsafe
 - (B) Contributed by uncontrolled engineering graduates
 - (C) Utilizing robot in a hazardous workplace
 - (D) A potential occurrence of a problem

14. The ten basic safety rules include
 - (A) Follow instructions
 - (B) Correct or report unsafe conditions
 - (C) Help keep the job site clean and in order
 - (D) All of the above

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15. Risk assessment is?
 (A) An identification tool to analyze a risk
 (B) Calculation of human error in a workplace
 (C) A set of safety guidance which need to be followed
 (D) A tool to indicate false and unsafe design
16. The correct fact about the BART case was
 (A) Innovative train design without tyres
 (B) Three engineers who perform whistle blowing
 (C) Irresponsible work payment to three engineers
 (D) An abusive project supervisor
17. Lesson learned from the BART case was
 (A) Engineers should work within their constraint
 (B) Failure to identify a design flaw
 (C) Engineers have right and responsibility
 (D) Only authorized person is allowed to perform whistle blowing
18. The correct statement about confidentiality is
 (A) Police can take any personal data from a criminal
 (B) Company data is not considered confidential when a person change job
 (C) Modify actual news to cover political agendas
 (D) It is a basic requirement in any profession
19. Types of conflict of interest includes
 (A) Actual conflict of interest includes
 (B) Potential conflict of interest includes
 (C) Appearance conflict of interest includes
 (D) All of the above
20. Basic right of an engineer includes
 (A) To sacrifice their sense of what is right or wrong
 (B) To obey or not to obey any safety rules
 (C) Not making any decision when pressurized by their employer
 (D) Aiming working benefits instead of saying the right thing
21. Engineer have a complex relationship with the environment due to
 (A) They know a venom can be turned into an antidote
 (B) They are responsible in designing something which affect the environment
 (C) They set environmental regulations
 (D) They are responsible to monitor changes in the environment

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22. The study of ecology is all about
(A) Ecosystem
(B) Biodiversity
(C) None of the above
(D) (A) and (B)
23. Sustainability is?
(A) Using current resource without compromising future generation resource
(B) Use of products or processes to reduce or eliminate hazardous outcome
(C) Sustaining current ecological system for a global market interests
(D) None of the above
24. Some of the sustainable practices available in industries includes
(A) Zero burning and replanting technique
(B) Biodiversity conservation
(C) Stringent safety and health programmes
(D) All of the above
25. How can environmental policy be adopted in the market
(A) Increase the use lower grade materials in locally bounded products
(B) Injecting value added in the supplied product without extra costs
(C) Increase the production of electric vehicles
(D) Install fewer light bulbs for operation during night shift

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SECTION B

- Q1** (a) Define the following terms.
- i) Right
 - ii) Responsibilities
 - iii) Confidentiality
 - iv) Conflict of interest
- (8 marks)
- (b) Explain the detail sequences of BART case.
- (8 marks)
- (c) (i) State **THREE (3)** categories of conflict of interest.
- (3 marks)
- (ii) Explain **THREE (3)** acceptable situations to attempt the whistle blowing.
- (6 marks)
- Q2** (a) (i) Discuss the complex relationship of an engineer with the environment.
- (5 marks)
- (ii) Name the top **TWO (2)** industries in the world with the highest impact to the human lives.
- (2 marks)
- (b) “Tobacco usage costs the world an estimated \$500 billion each year in health care expenditures, productivity losses, fire damage and other costs”. Discuss the relationship of ethics with the economics based this statement.
- (6 marks)
- (c) (i) Utilitarian said that, “we want to increase income, job and opportunities, and even overall public health”. Discuss **THREE (3)** main reasons (with examples) to reject this statement.
- (9 marks)
- (ii) “Engineers who do not share a concern for environmental issues where human health is not at stake may follow their own beliefs”. Discuss briefly whether this statement is correct.
- (3 marks)

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Q3 (a) Discuss on any **THREE (3)** global issues on ethics from the list below.

- (i) Multinational corporations
- (ii) Weapon development
- (iii) Environmental ethics
- (iv) Computer ethics
- (v) Ethics and research

(15 marks)

(b) There are four fundamental principles that should guide engineers and technicians in achieving the high ideals of professional life as listed by UK Standard for Professional Engineering Competence (UKSPEC). Copy and fill in the blanks in **Table Q3 (b)**.

Table Q3 (b): Four fundamental principles by UKSPEC

| No. | Statements | Examples |
|-----|---|---|
| 1. | Accuracy and rigour | 1. Always act with care and competence. 2. - |
| 2. | - | 1. Reject bribery or improper influence. 2. - |
| 3. | - | 1. Ensure that all work is lawful and justified. 2. Minimise and justify any adverse effect on society or on the natural environment for their own and succeeding generations. |
| 4. | Responsible leadership: listening and informing | 1. Be aware of the issues that engineering and technology raise for society, and listen to the aspirations and concerns of others 2. - |

(10 marks)

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Q4 Discuss on any **FIVE (5)** of the outlined topics below in relation the topic of “engineers and technological progress in Malaysia”.

- (i) Water resources
- (ii) Land quality management
- (iii) Property development and constructions
- (iv) Technological in thermal power generation
- (v) Innovation in agricultural technology
- (vi) Petroleum and gas technologies
- (vii) Nuclear energy technologies
- (viii) Technological for power from renewable resources
- (ix) Furniture technology
- (x) Engineering and technological capability

(25 marks)

- END OF QUESTION -