



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2014/2015**

COURSE NAME : ENGINEERS AND SOCIETY
COURSE CODE : BEE 10202
PROGRAMME : BACHELOR OF ELECTRICAL
ENGINEERING WITH HONOURS
AND BACHELOR OF ELECTRONIC
ENGINEERING WITH HONOURS
DATE : JUNE 2015 / JULY 2015
DURATION : 2 HOURS
INSTRUCTION : ANSWER ALL THE QUESTIONS

THIS QUESTION PAPER CONSISTS OF SEVEN (7) PAGES

CONFIDENTIAL**PART A - Objective (40%)**

**Choose the correct answer. Write your answer, 'a', 'b', 'c', or 'd', in the answer script.
Each question carries 2 marks.**

Q1 Which of the following correctly describe the term ENGINEER?

- a. The profession in which knowledge of the mathematical and natural sciences gained by study, experience, and applied practices with judgement, for the benefit of mankind.
- b. Professional practitioner of engineering, concerned with applying scientific knowledge, mathematics and ingenuity to design and develop solutions for technological systems problems.
- c. The discipline and profession of applying technical and scientific knowledge and utilizing natural laws and physical resources in order to design and implement materials, structures, machines, devices, systems, and processes.
- d. Has standards of conduct, responsibilities, is based on specialized knowledge and members can attain professional status in well-defined ways.

Q2 Which of the following govern engineering profession in Malaysia?

- a. BEM
- b. OSHA
- c. AIM
- d. CIDB

Q3 The following are the main sections for the code of ethics, except:

- a. A Registered Engineer shall at all times hold paramount the safety, health and welfare of the public.
- b. A Registered Engineer shall undertake assignments only if he is qualified by education & experience in the specific technical fields in which he is involved.
- c. A Registered Engineer shall conduct his employee about honourably, responsibly, ethically and lawfully
- d. A Registered Engineer shall act for each employer or clients as faithful agent or trustee.

Q4 What is the main function of The Board of Engineers Malaysia (BEM)?

- a. To promote and advance the theory and practice of engineering.
- b. To promote honest practice, prevent malpractice and settle disputed points of practice and ethics.

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- c. Raise the character and status, and advance the interests of profession.
- d. Regulate the professional conduct and practice of registered engineers in order to safeguard the public safety and interest.

Q5 Moral principles can be classified into:

- i. Al-dharuriyat = the most important in life
- ii. Al-hajjiyyat = to ease life
- iii. Al-Maskawayh = to be a better person
- iv. Al-tahsinat = to make life more comfortable

- a. i, ii
- b. ii, iii, iv
- c. ii, iv
- d. i, ii, iv

Q6 Professional Engineer is:

- a. Profession in which a knowledge of the mathematical and natural sciences gained by study, experience, applied practices with judgement, to develop ways to utilize economically the materials and forces of nature for the benefit of mankind
- b. Graduate engineer who has obtained the prescribed practical experience, passed the Professional Assessment Examination, and satisfied all other requirements of BEM.
- c. A person professionally engaged in a field of engineering.
- d. Working on real projects and be given increasing responsibility of their own work, to stimulate the interest and establish their confidence

Q7 Engineering ethics is an important subject in the engineering profession. Which of the following statements are the reasons of why it is important?

- i. To increase our ability to deal effectively with moral complexity in engineering.
- ii. To increase a moral value in critical thinking and moral awareness.
- iii. To strengthens our ability to reason clearly and carefully about moral questions.
- iv. To increase moral autonomy – self-determining, as the skill and habit of thinking rationally about ethical issues on the basis of moral concern.

- a. i, ii, iii
- b. ii, iii, iv
- c. i, iii, iv
- d. i, ii, iv

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Q8 Moral communication can be defined as:

- a. Two-way process of reaching mutual understanding, in which participants not only exchange (encode-decode) information, news, ideas and feelings but also create and share meaning.
- b. Precision in the use of a common ethical language, a skill needed to express and support one's moral views adequately to others.
- c. Discerning alternative responses to moral issues and finding creative solutions for practical difficulties.
- d. Comprehending, clarifying and assessing arguments on opposing sides of moral issues.

Q9 The following statements are the roles of codes of ethics, except:

- a. Support for responsible professionals
- b. Education and mutual understanding
- c. Deterrence and discipline
- d. Serving and protecting the family and animals

Q10 Which of the following statements are the requirements to become a Professional Engineer?

- i. Has accredited Engineering degree by Engineering Accreditation Council Malaysia (EAC).
 - ii. Has at least 3 years relevant practical experience since registered as a Graduate Engineer with BEM.
 - iii. Required to accumulate 50 CPD hours/year on average over 3 years.
 - iv. Has been residing in Malaysia for a period of not less than 12 months immediately prior to the date of application.
- a. i, ii, iii
 - b. i, ii, iii, iv
 - c. i, ii
 - d. ii, iii, iv

Q11 Statements below are the reasons for the creation of the Occupational Safety and Health Administration (OSHA), except:

- a. Accident Statistics.
- b. To promote the occupational environment adaptable to the person physiological & psychological needs.
- c. Global demands by UN, ASEAN & APEC and also by economical competitiveness.
- d. FMA (Factories & Machines Act) 1967 scope are too limited, prescriptive and too dependent on government.

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- Q12** One of the general duties of employer and self-employed persons, stated in Occupational Safety and Health Act 1994, is
- Produce the necessary arrangement to achieve the safety and health.
 - Contribute to the protection of the environment.
 - To establish the National Council for Occupational Safety and Health, and for matters connected therewith.
 - Approval of industry codes of practices.
- Q13** Which of the following can be damaged due to conflict of interest?
- Performance
 - Loyalty
 - Teamwork
 - Confidence and member's trust
- Q14** Blowing that occurs when an information is passed to a party outside the organization is referred to
- Internal whistle
 - Anonymous whistle
 - External whistle
 - In open whistle
- Q15** According to Dr Richard De George, whistle-blowing concerning safety is morally permissible when the following conditions are met, except:
- If the harm that will be done by the product to the public is serious and considerable.
 - If there are strong evidence that making the information public will prevent a threat.
 - If they have made their concern known to their superior, but no action has been taken.
 - If the response given by the immediate superior is not satisfactory.
- Q16** What is the responsibility of employees?
- Strive to give their best.
 - Furnish proper and correct details.
 - Should not cheat the company for personal gains.
 - Work safely to protect themselves and others from injury.
- Q17** Low level of loyalty shown to employees by an employer may lead to:
- Need for counselling
 - Employee morale

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- c. Inattentive workers
- d. Lost bonuses

Q18 'Able to accelerate acceptance because small-scale testing reduces risk' is referred as:

- a. Trialability
- b. Observability
- c. Complexity
- d. Compatibility

Q19 What is environmental ethics?

- a. Commitment and responsibility toward the environment, including plants and animals as well as present and future generations of people.
- b. Inculcate moral values towards nature.
- c. Learn to respect various life forms.
- d. Makes us aware of the indiscriminate and nefarious human activities.

Q20 How engineers can help save the world?

- i. By designing, inventing, building technological innovation environmental and energy innovation.
 - ii. By acknowledging future risks and trade-offs.
 - iii. By not being technocrats.
 - iv. By participating in the public policy process.
- a. i, ii
 - b. i, ii, iv
 - c. ii, iii, iv
 - d. i, ii, iii, iv

CONFIDENTIAL**PART B - Subjective (60%)**

- Q21** You are an expert in Occupational Safety and Health (OSH). Give your opinion on the following:
- (a) The importance of Occupational Safety and Health Act (OSHA) 1994. (6 marks)
- (b) Qualities of successful implementation of OSH policies. (9 marks)
- Q22** According to the scientists who have mapped the growing health impacts of global warming, the data shows that global warming affects different regions in very different ways. Global warming is particularly hard on people in poor and developing countries, which is ironic, because the places that have contributed the least to global warming are the most exposed to the death and diseases resulting from high temperatures. Recommend how an engineer can improve this situation for sustainable development. (15 marks)
- Q23** Creativity, innovation, invention, and research and development are important in achieving country's vision towards industrialized nation by the year 2020. Evaluate this issue in detail by taking into account the types of research and development (R&D), production styles, and the areas of concerned. (15 marks)
- Q24** An oil rig is a work place that is dangerous and full of hazard. The worst negative outcome of such hazard is the lost of human life. To continue working in such hostile environment safely, hazard analysis is very important. As a trained engineer, design a hazard analysis and explain how it can be performed. (15 marks)

- END OF QUESTION -