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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2018/2019**

COURSE NAME : ENGINEERS AND SOCIETY
COURSE CODE : BNR 42702
PROGRAMME CODE : BND/BNE/BNF
EXAMINATION DATE : JUNE/JULY 2019
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWERS ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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Q1 (a) There are **TWO (2)** routes to become a professional engineer. Demonstrate each of them.

(4 marks)

(b) You are working as a production engineer in a company producing high volume electronic components. The production line consists of fully automated equipment that runs by only technicians whose are working directly under your supervision. Define and elaborate your role as leader in this high volume fully automated manufacturing environment.

(4 marks)

(c) Your company documentation library has the following document type:

- (i) Product design specification – used by R&D department
- (ii) Product Catalog – to be sent to potential customer
- (iii) Schematic diagram of printed circuit board – to be used by PCBA subcontractors after signing non-disclosure agreement (NDA)
- (iv) Company annual report – for all the share holders
- (v) Embedded software source code for product – used and updated by software department
- (vi) Mechanical drawing of product casing – used and updated by mechanical design department
- (vii) Company magazine – can be read by all employees
- (viii) Technical report of a design - pending patent approval
- (ix) Company layout plan for fire safety – for safety inspection by authority like BOMBA and JKKP
- (x) Staff telephone directory – for used of all employees internally
- (xi) Safety Data Sheet for Isopropyl Alcohol – for use as safety information
- (xii) Tender proposal of a project – to de delivered to customer

Categorize all the documents into a table of:

- i) Copyright control
- ii) Confidential
- iii) Non-confidential

(12 marks)

- Q2**
- (a) (i) Determine the element that is most important vital sign of the health of the organization where everyone’s participation and input is critical to successful tasks.
(2 marks)
 - (ii) Debate at least **EIGHT (8)** characteristics of the good element in question Q2(a)(i).
(4 marks)
 - (iii) Debate at least **EIGHT (8)** characteristics of the bad element in question Q2(a)(i).
(4 marks)
- (b) (i) In decision making process, it is very important to consider ethical reasoning. Propose **EIGHT (8)** ethical reasoning to be consider before making a decision.
(4 marks)
- (ii) You have been working as design engineer for a new protective gear with a defense company and you have succeeded in creating a prototype gear that can withstand an exploded C4 bomb. This safety gear can be used for bomb squad during their process to disable any bomb threat. You are requested to test this gear in actual exploded bomb situation on human being and you have been given decision to select any human subject from prison who are waiting for death penalty. Debate through your decision thoroughly until you came out with a decision whether to proceed or not with the testing.
(6 marks)
- Q3**
- (a) The Occupational Safety and Health policy is a written statement briefly stating the commitment of employer and employee. Explain the commitment of:
 - (i) employer
 - (ii) employee(4 marks)
 - (b) Debate thoroughly the obligations of the employer to protect the employees in relation to safety, health and welfare.
(4 marks)
 - (c) You are appointed to lead a Safety and Health Committee in your company. Explain what will be your action taken immediately after your appointment to ensure safety and health issues in your company.
(6 marks)

- (d) Ahmad is a new employee in one of manufacturing company in Pagoh. As a senior staff in company human resource department, Abdul Samad is giving briefing to Ahmad relating to responsibility of the employees at the workplace. In your opinion what will be the content of Abdul Samad briefing?

(6 marks)

- Q4** (a) Discuss **FOUR (4)** challenges of globalization to the engineers when they moving towards internationally integrated markets and global interconnection.

(4 marks)

- (b) National Society of Professional Engineers stated that “*Sustainable Development* is the challenge of meeting human needs for natural resources, industrial products, energy, food, transportation, shelter, and effective waste management while conserving and protecting environmental quality and the natural resource base essential for future development”. Use a proper diagram to debate how Social, Economic and Environmental can be integrate to create sustainability.

(8 marks)

- (c) A representative from Board of Engineer Malaysia (BEM) giving a talk to a group of engineers to promote the principles of sustainable development in order to protect the environment for future generations. If you are the BEM representative, what would be your advice to this group of engineers?

(8 marks)

- Q5** (a) Briefly discuss how engineer can help save the world from rapid technological development for the growing world population.

(5 marks)

- (b) Sustainability development should be implemented in engineering field in our country to protect our future generation. Describe what is considered as strong sustainability development.

(5 marks)

- (c) You are working as town planner and you are asked to propose a development of a new township in one of the district in Malaysia with housing, school, supermarket, and commercial building. Describe what are the sustainable development concept you can apply to this new township.

(10 marks)

-END OF QUESTIONS -