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Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2017/2018**

COURSE NAME : ENGINEERS AND SOCIETY
COURSE CODE : BFC 32202
PROGRAMME : BFF
EXAMINATION DATE : DECEMBER 2017 / JANUARY 2018
DURATION : 2 HOURS
INSTRUCTIONS : 1. ANSWER **FOUR (4)** QUESTIONS ONLY
2. ANSWER **Q1** and CHOOSE **THREE (3)** OTHER QUESTIONS ONLY.

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THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

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- Q1** (a) List the expected **EIGHT (8)** attributes of engineers in Year 2020. (8 marks)
- (b) Based on strategic industrial planning, a government such as Malaysia will need to acquire knowledge and technologies from advanced and developed resources. Explain briefly **THREE (3)** methods that may be used as an approach to successfully assist the government in conducting this initiative? (6 marks)
- (c) Collaboration between public and private sectors contribute towards successful research and development outcomes. Explain clearly **THREE (3)** contributions that may come from companies in the private sector. (6 marks)
- (d) In the Code of Professional Conduct, Regulation 26 of Board of Engineers Malaysia it is stated that "*Reputation, etc of a Registered Engineer is not to be injured*". Discuss the meaning of this statement and the importance for all engineers to strictly comply with this code of ethics. (5 marks)
- Q2** (a) Based on your understanding of Civil Engineering, explain briefly **FIVE (5)** sub-disciplines in civil engineering. (7 marks)
- (b) Development is considered a necessity for a nation. However, it must be done appropriately. Explain briefly **FIVE (5)** reasons why development is required in a country. (8 marks)
- (c) Engineers in all branches or main engineering disciplines must possess core competency in mathematics, science and basic engineering knowledge in order to prepare them for advance tasks in their specific disciplines. Discuss the necessity of these requirements. (10 marks)
- Q3** (a) Explain briefly the **FOUR (4)** main elements for interaction rules of behavior as introduced in the engineering profession. (8 marks)

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(b) Explain briefly the roles and functions of the followings:

- (i) BEM
- (ii) IEM
- (iii) REAM

(7 marks)

(c) Engineers are responsible in ensuring the well-being and progress of a project. Explain clearly **SEVEN (7)** main roles of engineers in relation to civil engineering field.

(10 marks)

Q4 (a) Explain clearly **FIVE (5)** impacts of environmental damages that engineers may be able to reduce when they are working.

(7 marks)

(b) The collaboration in research and development between university and industry is important. State **FOUR (4)** strategies so that it will be successful.

(9 marks)

(c) Identify and discuss **FOUR (4)** advantages and **FOUR (4)** disadvantages of establishing a professional Code of Ethics for engineers?

(9 marks)

Q5 (a) Explain briefly **THREE (3)** different types of *volume end-product dependent* production cycle.

(8 marks)

(b) There are many niche areas that an engineer can contribute towards the development of a nation. Explain clearly the present and future of **FIVE (5)** *key areas* where growth in research and development has great potential and rapid.

(8 marks)

(c) In the future, engineers will face many challenges in addressing issues arising from world population growth which will need them to conduct R & D. Explain clearly **FOUR (4)** issues in managing Research and Development by engineers.

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(9 marks)

-END OF QUESTIONS-