ORDRE DES INGÉNIEURS DU QUÉBEC

NOVEMBER 2022 SESSION

Open-book examination
Calculators : only authorized models
Duration : 3 hours

14-EC-2 ENGINEERING IN SOCIETY, HEALTH AND SAFETY

Question 1 (20 marks)

i. What are the examples of hazardous energies that require lockout procedures? (3 marks)
ii. Explain how we can apply lockout procedures to a mobile machine (e.g. a loader). (3 marks)
iii. What are the main themes you need to include in your lockout program? (3 marks)
iv. Lockout procedures and return to service procedures have several steps. What are those steps and their sequence? (3 marks)
v. Explain why those steps are important. (4 marks)
vi. If lockout cannot be applied, how can one ensure that other methods provide en equivalent level of safety? (2 marks)
vii. Provide examples of such methods. (2 marks)

Question 2. (20 marks)

Indicate whether the following statements are TRUE or FALSE.

i. Whenever an engineer considers that certain works are a danger to public safety, he must notify the Ordre des ingénieurs du Québec or the persons responsible for such work. (2 marks)
ii. Before accepting a mandate, an engineer must bear in mind the extent of his proficiency and aptitudes and also the means at his disposal to carry out the mandate. (2 marks)
iii. An engineer must at all times acknowledge his client's right to consult another engineer and, in such cases, he must offer his cooperation to the latter. (2 marks)
iv. An engineer must refrain from expressing or giving contradictory or incomplete opinions or advice, and from presenting or using plans, specifications and other documents which he knows to be ambiguous or which are not sufficiently explicit. (2 marks)
v. In all aspects of his work, the engineer must respect his obligations towards man and take into account the consequences of the performance of his work on the environment and on the life, health and property of every person. (2 marks)

vi. An engineer must inform his client as early as possible of any error that might cause the latter prejudice and which cannot be easily rectified, made by him in the carrying out of his mandate. (2 marks)

vii. Where an engineer is responsible for the technical quality of engineering work, and his opinion is ignored, the engineer must clearly indicate to his client the consequences which may result therefrom. (2 marks)

viii. Before ceasing to exercise his functions for the account of a client, the engineer must give advance notice of withdrawal within a reasonable time. (2 marks)

ix. There are no guidelines to determine fees for the engineer. (2 marks)

x. An engineer shall not resort nor lend himself to nor tolerate dishonest or doubtful practices in the performance of his professional activities. (2 marks)

Question 3 (20 marks)

i. How is defined an enclosed area also known as confined space? Give three examples of confined spaces (4 marks)

ii. What are the risks associated with work in enclosed areas? (4 marks)

iii. How can one manage risks associated with work in enclosed areas? (4 marks)

iv. How can we design a confined space that is a bit safer? (4 marks)

v. Give an example of an intervention in a confined space that also requires lockout procedures. (4 marks)

Question 4 (20 marks)

i. An engineer shall not abuse a colleague's good faith, be guilty of breach of trust or be disloyal towards him or willfully damage his reputation. Give examples of acts that must not be done. (4 marks)

ii. What can be considered as just and reasonable grounds allowing an engineer to cease to act for the account of a client? (4 marks)

iii. What are the conditions allowing an engineer to be released from professional secrecy? (4 marks)

iv. What are the acts considered as derogatory to the dignity of the engineering profession? (4 marks)

v. What are the conditions to meet when an engineer is doing his representation or advertising? (4 marks)