



INTI
International College Penang
LAUREATE INTERNATIONAL UNIVERSITIES*

FINAL
Examination Paper

(COVER PAGE)

Session : April 2014

Programme : Diploma in Electrical and Electronic Engineering (DEEI)

Course : ENL1102: TECHNICAL ENGLISH

Date of Examination : 25 JULY 2014

Time : 2.00pm – 4.00pm Reading Time : Nil

Duration : 2 Hours

Special Instructions :

This paper consists of SIX (6) questions. Answer ALL questions in SECTION A, SECTION B and any ONE (1) question in SECTION C in the answer booklet provided.

Materials permitted :

Nil

Materials provided :

Periodic table

Examiner(s) : Grace Kang

Moderator : Dr. Ting Su Hie

This paper consists of 10 printed pages, including the cover page.

INTI INTERNATIONAL COLLEGE PENANG
DIPLOMA IN ELECTRICAL & ELECTRONIC ENGINEERING.
ENL 1102: TECHNICAL ENGLISH
FINAL EXAMINATION: APRIL 2014 SESSION

Instructions: This paper consists of **SIX (6)** questions. Answer **ALL** questions in **SECTION A**, **SECTION B** and any **ONE (1)** question in **SECTION C** in the answer booklet provided.

SECTION A: Answer **ALL** questions.

Question 1 (30 marks)

Read the following report about a problem that has occurred during the design and construction of an arctic oil platform.

CASE STUDY: AN ARCTIC OIL PLATFORM

Background

When platforms operate in temperatures that drop to -40°C , their steel bolts can become **brittle**. Bolts that are made from the wrong material could shear under the stresses of drilling. Broken bolts that fall from the derrick could injure or kill workers below. Therefore the specification of the material is **critical**.

Design and construction

At the start of a drill platform construction project for the arctic, low-temperature bolts were specified. The design and the construction phase lasted several years. During this time, some team members left and new members joined the team. When the platform construction was almost complete, the final step in the project was to certify *it* for use.

Certification

Inspectors discovered a problem during the certification review. There was a small difference between the specified bolts and the bolts that were actually used. The specification numbers of the two bolts were almost the same. The correct bolt had two additional digits in the specification

number. Although the bolt materials were the same, the correct bolts were approved for use at low temperatures. The slightly different specification number showed this. Before certification, all of the wrongly specified bolts had to be replaced. *This* cost hundreds of thousands of dollars. However, the certification check may have saved lives or prevented a serious injury.

Analysis

An investigation found that the correct specification had been discussed between the design teams but the meetings were not properly documented. The changes in **personnel** meant that the importance of the two additional digits were lost, causing cost and time delays.

A. Choose the correct answer based on the text above. (12m)

1. Steel can become brittle _____.
 - a. at low temperatures
 - b. in contact with oil
 - c. during construction

2. _____ worked on the project during design and construction.
 - a. One main project team
 - b. Many different engineers
 - c. No subcontractors.

3. Certification happened _____ the project.
 - a. at the beginning of
 - b. halfway through
 - c. near the very end of

4. The bolts used for construction were _____ materials
 - a. the wrong
 - b. an unknown
 - c. the correct

5. The bolts that were specified were certified for _____ conditions.

- a. very cold
- b. underwater
- c. extremely windy

6. Certification was given because the bolts _____.

- a. weren't critical components
- b. were changed
- c. were the correct material

7. The main cause of the misunderstanding was poor _____.

- a. construction methods
- b. design work
- c. documentation

8. Choose the closest meaning to the word **brittle**.

- a. Stiff
- b. Breakable
- c. Flexible

9. Chose the closest meaning to the word **critical**.

- a. Trivial
- b. Contrary
- c. Essential

10. Choose the closest meaning to the word **personnel**.

- a. Staff
- b. Researches
- c. Designers

11. What does *it* refer to?

- a. Bolts
- b. Final step
- c. Platform

12. What does *This* mean?
- The replacement of the bolts
 - The replacement of the oil platform
 - The replacement of the certification

B. Answer the questions based on the text above. (18m)

- When engineers specify materials for a project like this one, what environmental factors do they need to consider? (2m)
- What could happen if incorrect materials are used? (3m)
- When a structure like this is certified for use, what do you think the engineers need to prove? (1m)
- What is the importance of a certification stage? (1m)
- What is the importance of the analysis? (1m)
- What are the benefits of having one team work on a project throughout its development and construction? (3m)
- What problems can arise when one team works on a project throughout its development and construction? (3m)
- In this case, the certification process worked and changes were made to correct the problem. Name a case from the news or in your local area where certifications were given even though a building or product was unsafe? What happened? (4m)

SECTION B: Answer **ALL** questions.

Question 2 (10 marks)

Join the following groups of sentences to make ten longer sentences. Use the words given. You may omit words and make whatever changes you think are necessary in the grammar, word order and punctuation of the sentences.

1. which

A resistor is a device.

A resistor is used to add resistance to a circuit.

2. both

Many types of resistors are made.

Fixed and variable resistors are made.

3. either...or

Most resistors are made from two materials.

Resistance wire and compressed graphite are used.

4. such as, which

Wirewound resistors consist of a coil of resistance wire.

Nichrome is a resistance wire.

The resistance wire is wound on a former.

5. to

A ceramic coating is applied over the winding.

The ceramic coating insulates the winding.

6. for example

For small currents, carbon resistors are used.

Small currents are usual in radio work.

7. which

Carbon resistors are made of compressed graphite.

The graphite is formed into small tubes.

8. which

Connections are made with wires.

The wires are attached to the ends of the resistor.

9. either...or

Variable resistors may have a coil of resistance wire.

Variable resistors may have a carbon track.

10. so that

The wire or track is mounted.

A sliding contact can rub over it to select the resistance required.

Question 3 (12 marks)

Study these instructions for soldering a resistor into a printed circuit board (pcb):

1. Bend the leads and insert them through the correct holes in the pcb.
2. Pull the resistor flat against the board and bend back the leads.
3. Heat the first lead with a soldering iron and apply solder to the heated lead.
4. Heat and apply solder to the second lead.
5. Allow the soldered joints to cool.
6. Trim the leads using wire clippers.

Write a description of this process by rewriting each instruction in the present passive. Use linkers (first, then, next, after that, finally, etc.) to describe the process clearly.

Question 4 (12 marks)

Fill in the spaces in this paragraph with suitable reinforcing ideas from the table.

Instruments for voltage measurement

Instrument	Advantages	Disadvantages
Moving-coil multimeter	Reasonably accurate, robust, versatile	Frequency range limited on ac
Electronic voltmeter	Draws no current from the circuit, wide frequency range	Expensive
Electrostatic meter	Simple, can be used with ac or dc without a rectifier	Insensitive, has a non-linear scale
Oscilloscope	Also gives information about waveform and frequency	Large, expensive

A number of instruments can be employed to measure voltage. The moving-coil multimeter is often used because it is cheap and reasonably accurate. Moreover (1) _____. However if the impedance of the instrument is low, the meter will draw too much current from the circuit. In addition, (2) _____. The electronic voltmeter is almost ideal since the circuit is not loaded. Furthermore (3) _____. However it is a relatively expensive instrument. The electrostatic meter is the simplest instrument for very high voltages. It responds to both ac and dc. However it is insensitive and (4) _____. The cathode ray oscilloscope gives more information than any other instrument. It not only measures the voltage but it also (5) _____. However oscilloscopes are usually large. In addition, (6) _____.

Question 5 (6 marks)

Fill in the blanks with **ONE** suitable word.

continue	potential	deliver	assess	promotion
obsolescence	specialty	knowledge	value	perception

Engineers need to continue their education throughout their careers because much of their value to an employer depends on their (1) _____ of the latest technology. Though the pace of change varies by engineering (2) _____ and industry, all engineering disciplines have been affected by technological advances. In areas like advanced electronics or IT, technical knowledge can rapidly become outdated. Even those who (3) _____ their education are vulnerable to layoffs if their particular or product becomes obsolete. By keeping up-to-date in their field, engineers can (4) _____ the best solutions and offer the greatest value to employers. Engineers who have not kept current in their field may be passed over for (5) _____ or be vulnerable to layoffs. However, high-tech areas offer great challenges, interesting work, and high salaries. So, engineers, when making career choices, need to (6) _____ not only the potential rewards but also the risk of technological obsolescence.

SECTION C: Answer any **ONE (1)** of the following questions.

Question 6A (30 marks)

Much has changed in the past half century. We now have computers on every desk and some that can fit in our pockets. We have explored the moon and Mars and launched space telescope. Our phones can take pictures, connect to the internet, and play music and movies. All of these innovations relied on engineering. Think about how engineering has affected the lives of the many people in this century.

In about **300-350 words**, describe how engineering has improved people's quality of life in **ONE** of these four areas

- Health
- Communication
- Education
- Transportation

OR

Question 6B (30 marks)

In about **300-350 words**, state your opinion and give reasons to support your argument about the following topic:

Is the digital generation going to be smarter or dumber?

--THE END--

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