



UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 1 Examination in Engineering: December 2023

Module Number: IS1301 [C-23] Module Name: Communication for Engineers

[Three hours]

[Answer **all** questions in the answer booklet provided. Each question carries 12 marks]

Q1. a) Complete the following sentences with the correct form of the verb in the brackets.

- i. Engineers should consider ____ (master) negotiation skills, which can help them sell ideas and get buy-in across organizations.
- ii. Ever since he got a credit card, he ____ (spend) a lot of money on unnecessary tools.
- iii. Many people usually ____ (spend) most of their time online on various social media platforms.
- iv. During our last semester, we ____ (devote) most of our time in moulding our perspectives to be a successful engineer.
- v. In the late 2010s, graphics processing units (GPUs) ____ (design) with AI-specific enhancements.
- vi. Travelling ____ (become) much easier and more comfortable in the past hundred years.
- vii. Management skills ____ (be) vital considering engineers' earning potential.
- viii. Nishan ____ (repair) an old machine in the afternoon when he got the call.
- ix. I ____ (not finish) my report because I had a problem with my computer.
- x. By the time I graduate from university next year, I ____ (live) here for four years.
- xi. Leveraging design thinking skills to pursue innovation not only ____ (help) professionals find creative solutions but identify business opportunities.
- xii. The project manager, Mr.Perera ____ (live) in Colombo now, but he says he'll move soon.

(6 Marks)

b) Transform the following sentences into passive voice.

- i. Peterson Engineering, Inc., has completed a geotechnical investigation of the proposed site.
- ii. He acknowledged their proposal with gratitude.
- iii. They are hosting hundreds of tourists to the launch of the new showroom.
- iv. We will send you the project report next month.
- v. Government officials have prohibited the use of genetically engineered wheat in the production of commercial pancake mixtures.
- vi. The planning engineers have evaluated the alternatives based on initial construction costs.
- vii. The study team collected supplemental information through visual inspections of 55 additional bridges.
- viii. A separate report addresses the issues regarding over-crossing bridges in the area.
- ix. The discussion panel raised profound questions.
- x. Workers were setting up a road block when I passed through.
- xi. The engineer was making a plan to complete the project before the deadline.
- xii. You can discuss your suggestions with the directors in the next meeting.

(6 Marks)

[Total - 12 Marks]

Q2) Read the passage and answer the questions given below in complete sentences.

The built environment and human mental health

In recent years, the built environment and human mental health have attracted extensive attention from the international community. The World Health Organization has pointed out that the Healthy Cities movement has become a pioneer in urban development and transformation, providing an impetus to the creation of a healthier and friendlier urban environment as well as maintaining human mental health and well-being. As an important part of urban built environment, urban green space has long been recognized in the fields of promoting residents' mental health.

First, green space can absorb pollutants from the air and improve air quality. Green space has a significant impact on pollution exposure. Yin and Yuan indicated that increasing green space can mitigate **the urban heat island**, and thus improve air quality. Gascon suggested green space has a potential protective effect on mental health (depression and anxiety) in adults, mediated in part by air pollution and, to a lesser extent, noise exposure. Franklin indicated that people's exposure to smoke at home and residential exposure to artificial light at night and near-roadway air pollution were associated with increased perceived stress. These connections seem to be partly

mitigated by more residential green space. Urban green spaces will reduce residents' sensitivity to stress. These results may provide a theoretical basis for green space to reduce environmental pollution and improve residents' mental health.

Second, green space also absorb noise from the environment, thus reducing the stress of living and promoting mental health of residents. Several studies have been conducted to explore this link. The presence of vegetation can also weaken the negative perception of noise, to a certain extent. Plants have a greater ability to maintain attention. This allows residents to better relieve the self-perception of pain and relieve pressure, thus adjusting the psychological state and improving people's mental health. Yang found that high levels of stress affected sleep quality, but the impact of stress was relatively small in neighborhoods with large amounts of green space. In other words, green space can improve sleep quality by absorbing noise.

Furthermore, green space can allow for visual stimulation, which can make people's minds more relaxed. Horiuchi et al. suggested that visual stimulation, such as viewing a real forest, might produce psychological benefits for human health, compared to not viewing a real forest. This stimulation may be associated with feelings of comfort, which lowers blood pressure, heart rate, and psychological stress. Different green space areas have different decompression effects. Van et al. showed that respondents who lived in neighborhoods with more green space were less affected by stressful life events than those who lived in neighborhoods with less green space. The above-mentioned results emphasize that green space has a buffering effect on stress.

Green space can provide spaces for outdoor sporting activities and opportunities for physical activity. The duration of time spent engaging in green space has an effect in reducing stress levels. A study conducted by Lu in Swedish towns and cities showed that the amount of time residents spent outdoors in green areas is inversely related to their own stress. A brief recreation program in the forest may be effective in reducing the negative symptoms of stress. Whether walking in the suburbs or in the forest, participants felt relaxed physically and psychologically, and this activity had a positive impact. Forest bathing heightened the positive effects and induced a feeling of subjective restoration and vitality.

Green space enhances children's interaction with nature and affects their cross-cultural communication and growth. Frances found that the interaction between natural environments and animals is extremely important for children's growth. Echeverria confirmed that urban green space, such as parks and playgrounds, can significantly promote cross-cultural contact and friendship between children. Sedentarism can lead to poor mental health in children, while spending time in green spaces can improve this situation. Andrusaityte showed that residential greening and time spent in parks are positively correlated with a reduction in children's general and mental health risks. An increase in time spent playing and interacting can allow

children to resolve emotional problems and establish peer relationships, and it can increase their concentration.

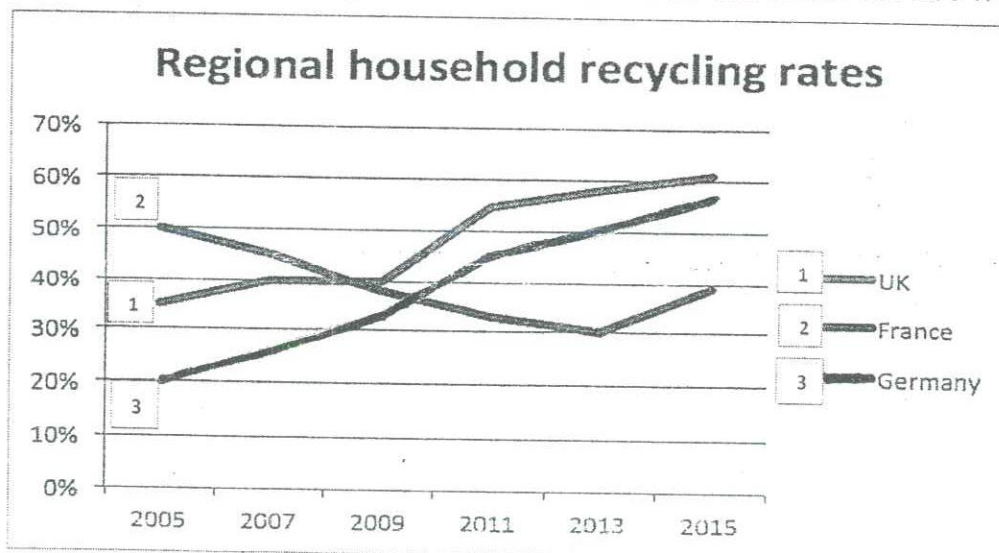
(Source: <https://pubmed.ncbi.nlm.nih.gov/pmc/articles/PMC8621109/>)

- i. According to paragraph 1, what is pointed out by The World Health Organization? (1 Mark)
- ii. According to the text, how can green space improve sleep quality of the residents? (1 Mark)
- iii. According to research, what are the causes of residents' increased perceived stress? (1 Mark)
- iv. What is the meaning of "the urban heat island" in the second paragraph? (1 Mark)
- v. What happens when visual stimulation associated with green spaces improve the feelings of comfort? (1 Mark)
- vi. According to the text, what is an impact of forest bathing? (1 Mark)
- vii. Which incidents establish peer relationships among children? (1 Mark)
- viii. What is demonstrated by Andrusaityte's study on green spaces? (1 Mark)
- ix. Write grammatically correct sentences to bring out the meaning of the following words (Do not take sentences from the above text).
 - a) Transformation
 - b) Interaction

(4 Marks)

[Total - 12 Marks]

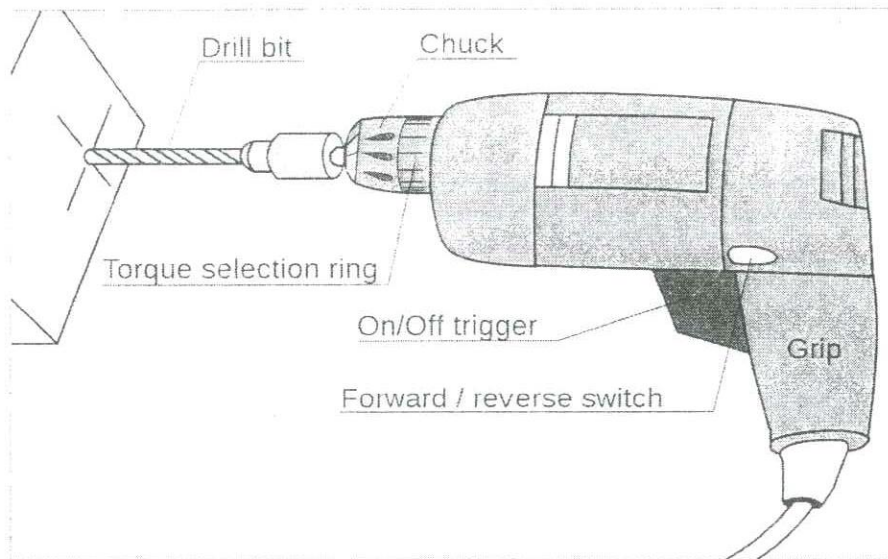
Q3) a) The line graph below shows the household recycling rates in three different countries between 2005 and 2015. Summarise the information by selecting and reporting the main features, and make comparisons where relevant. Use about 140-150 words.



(Source: <https://ielts-up.com/>)

(6 Marks)

b) Write a paragraph describing the tool below. Use about 100-110 words.



(Source: <https://www.nicepng.com/ourpic/u2e6y3w7e6a9a9r5/>)

(6 Marks)

Q4) Write short paragraphs for the topics given below. Consider the structure, organization, and coherence in developing your paragraph. Use about 100 words per each.

- a) Career opportunities in engineering (3 Marks)
- b) Tips for improving time management and productivity as a student (3 Marks)
- c) Critical thinking leads to academic success (3 Marks)
- d) Essential skills to become a confident presenter/ speaker (3 Marks)

[Total - 12 Marks]

Q5) Select one of the topics given below and write an essay. Your essay will be marked for the content, language and organization. Write about 250 words.

- a) Are humans becoming slaves to modern technology and social media? Critically discuss with examples.
- b) The impact of Artificial Intelligence (AI) on the future job market
- c) The role of professional engineers to uplift Sri Lanka's economy and sustainable development
- d) Individual learning versus group learning: Pros and cons
- e) The importance of effective communication in leadership

[Total - 12 Marks]