



**** Please answer all of the following questions in the answer sheet. (Total marks 50)**

Section One: Academic Technical Writing:

1. Restate the following using the general techniques of Summarization:

The invention of the incandescent light bulb by Thomas A. Edison in 1879 created a demand for a cheap, readily available fuel with which to generate large amounts of electric power. Coal seemed to fit the bill, and it fueled the earliest power stations (which were set up at the end of the nineteenth century by Edison himself). As more power plants were constructed throughout the country, the reliance on coal increased. Since the First World War, coal-fired power plants have accounted for about half of the electricity produced in the United States each year. In 1986 such plants had a combined generating capacity of 289,000 megawatts and consumed 33 percent of the nearly 900 million tons of coal mined in the country that year. Given the uncertainty in the future growth of nuclear power and in the supply of oil and natural gas, coal-fired power plants could well provide up to 70 percent of the electric power in the United States by the end of the century.

Source: McEachern, W.A. (1991). *The History of Electricity* (2nd ed.). Cincinnati, OH: South-Western, page 3.

2. Paraphrase using different synonyms:

"The U.S. government declared that the AIDS crisis poses a national security threat. The announcement followed an intelligence report that found high rates of HIV infection could lead to widespread political destabilization."

Source: Snell, H. (2005). *AIDS and its effect on the American Community*. London: Croom Helm, page 14.

3. Paraphrase using different definition structures:

"Lyme disease is an inflammatory disease caused by a bacterium transmitted by ticks (small bloodsucking arachnids that attach themselves to larger animals). The disease is usually characterized by a rash followed by flu-like symptoms, including fever, joint pain, and headache."

Source: Singal, A.G., Mukherjee, A., Joseph Elmunzer, B. et al. (2013) *Machine learning*. Am J Gastroenterol.108: 1723-1730

4. **Paraphrase** by changing the sentence structure, and different connecting words:
"Although only about one-tenth of the world's population lives there, sub-Saharan Africa remains the hardest hit region, accounting for 72 percent of the people infected with HIV during 2000."

Source: Llovet, J.M., Bustamante, J., Castells, A. et al. Rationale for the design and evaluation of therapeutic trials. Hepatology. 1999; 29: 62-67

5. Write at least 250 words on **ONLY** one of the following topics. Pay attention to the organization of your ideas, vocabulary, grammar, punctuation and spelling

1. One of the consequences of improved medical care and vast development in biomedical engineering is that people are living longer and life expectancy is increasing. Do you think the advantages of this development outweigh the disadvantages? Give reasons for your answer and include any relevant examples from your own knowledge or experience.
2. In the past, when students did a university degree, they tended to study in their own country. Nowadays, they have more opportunity to study abroad. What are the advantages and disadvantages of this development? You should use your own ideas, knowledge and experience and support your arguments with examples and relevant evidence.

Section Two: Reading Skills:

(Reading 1) Read the following passages then answer the questions:

On clear nights, stars from distant galaxies are easily observed by those on Earth because their light has traveled years through the vacuum of the universe. Light can travel through a vacuum, or empty space. A laboratory experiment demonstrates this: When air is pumped out of a glass vacuum chamber that contains a ringing bell, the bell remains visible while the sound fades away. A vacuum cannot transmit sound waves, but light rays continue to pass through it.

It is much easier to describe the interaction of light with matter than to explain light itself. One reason for this is that light cannot be seen until it interacts with matter. A beam of light is invisible unless it strikes an eye or unless there are particles that reflect parts of the beam to an eye. Also, light travels very fast. For centuries scientists disputed whether it required any time for light to move from one point to another.

The Renaissance scientist Galileo suggested one of the first experiments to measure the speed of light. Italian scientists carried out his idea. Two men were stationed on two hilltops. Each had a shaded lantern. The first man was to uncover his lantern. As soon as the second man saw the light, he was to uncover his lantern. The scientists tried to measure the time between the moment the first lantern was uncovered and the moment a return beam was detected. The speed

of light was too fast to be measured in this way; therefore, the scientists concluded that light traveled instantaneously.

In 1675 Olaus Roemer, a Danish astronomer, was dealing with a different problem when he came across a method for measuring the speed of light. He was timing the eclipses of Jupiter's moons and noticed that the time between eclipses varied by several minutes. As Earth approached Jupiter, the time between eclipses grew shorter. As Earth receded from Jupiter, the time between eclipses grew longer. Roemer proposed that these discrepancies be used to calculate the time required for light to travel the diameter of Earth's orbit. Since the exact size of Earth's orbit was not yet known, and since Jupiter's irregular surface caused errors in timing the eclipses, he did not arrive at an accurate value for the speed of light. Still, Roemer had demonstrated that light took time to travel, but was too quick to measure with instruments then available.

1. Light cannot be seen until it
 - a. travels through a vacuum.
 - b. interacts with matter.
 - c. orbits Earth.
2. An experiment in which shaded lanterns were used to measure the speed of light was suggested by
 - a. a Dutch astronomer.
 - b. Italian scientists.
 - c. Galileo.
3. The shaded lantern experiment was a failure because
 - a. light travels instantaneously.
 - b. the speed of light is too fast to be measured that way.
 - c. of bad weather.
4. Olaus Roemer demonstrated that
 - a. Jupiter's surface is irregular.
 - b. light takes time to travel.
 - c. Earth's orbit creates light.
5. Light from stars
 - a. reaches Earth in seconds.
 - b. reaches Earth in hours.
 - c. takes years to travel to Earth.
6. Early experiments to measure the speed of light were unsuccessful because
 - a. scientists lacked the proper instruments.
 - b. scientists did not know enough about light's characteristics.
 - c. light is invisible.
7. You can conclude from the article that the time between eclipses on Jupiter is affected by
 - a. the nearness of Earth.
 - b. Jupiter's irregular surface.
 - c. how it is measured.
8. You can conclude from the article that any sounds made by distant stars
 - a. would take years to travel to Earth.
 - b. would be translated into light rays in space.
 - c. would not be heard on Earth.
9. From the article you can conclude that for light from distant stars to be observed on Earth, it must
 - a. pass through a glass vacuum chamber.
 - b. interact with matter.
 - c. pass by the moons of Jupiter.
10. Neither Galileo nor Roemer was successful in measuring the speed of light, but
 - a. Roemer's results were more significant.
 - b. Galileo's results were more significant.
 - c. their methods were similar.

(Reading 2) Read the following passages then answer the questions:

Can people control their own evolution in order to achieve a population free of physical and mental defects? For more than 100 years, individuals who support eugenics, the study of human change by genetic means, have answered "yes."

The word eugenics comes from a Greek word that means "wellborn." Supporters of eugenics seek to change the human race through artificial selection. This refers to the controlled breeding of people who have certain physical characteristics or mental abilities. Eugenics is based on the science of genetics, the science that studies how genes are structured and passed on through generations. Eugenics also involves the use of information obtained from other areas of knowledge. Psychology, the study of personality; medicine, as it relates to the genetic factors of certain diseases and conditions; sociology, the study of group interaction; and demography, the statistical study of human populations, are some of the disciplines upon which eugenic theories are based.

Ideas about improving animal and plant stocks have existed since ancient times. Many animals, especially dogs and horses, have been bred to improve specific characteristics. Trees and other plants have also been bred to obtain hardier and more productive strains. Thoughts about improving human beings by such means existed in ancient times. The famous Greek philosopher Plato discussed such possibilities in his *The Republic*.

Current interest in eugenics involves studying the nature and causes of genetic defects, the ways in which psychological traits are determined, and the relationship between environmental factors and heredity. Scientists believe that today the number of people who are carrying defective genes is increasing. Part of the explanation for this increase is that more people are being exposed to damaging radiation, chemicals, and other environmental hazards. Another reason may lie in generations of poor nutrition. Medical advances, however, have made it possible for people with inherited diseases and other deficiencies to live longer and to produce children.

Each year increasing numbers of genetic defects are being defined, the ways in which they are transmitted are better understood, and methods for identifying carriers of such defects are being improved. The controversial field of genetic surgery, in which harmful genes are altered by direct manipulation, is also being studied. An international effort is being made to locate and map all of the genes that make up a human being. This project, when completed, should greatly help efforts to understand genetic makeup and control genetic defects.

1. The science of genetics studies
 - a. group interaction.
 - b. how genes are structured and passed on.
 - c. the statistics of human population.
2. The word eugenics comes from a Greek word meaning
 - a. "well born."
 - b. "intelligent."
 - c. "heredity."
3. Changing the human race through artificial selection is a concept of
 - a. psychology.
 - b. eugenics.
 - c. philosophy.
4. Scientists believe that the number of people who are carrying defective genes is
 - a. staying about the same.
 - b. decreasing.
 - c. increasing.
5. In genetic surgery,
 - a. genes are transferred from one part of the body to another.
 - b. genes are added to the body.
 - c. harmful genes are altered by direct manipulation.
6. You can conclude from the article that genetic defects
 - a. are an avoidable result of modern technology.
 - b. can be controlled.
 - c. are worsened by stress.
7. A factor that proponents of the eugenics theory would most likely prefer in people is
 - a. low level of intelligence.
 - b. average intelligence.
 - c. above average intelligence.
8. The concept of controlling genetic defects
 - a. is a new concept.
 - b. has been an international concern.
 - c. attracts more detractors than supporters.
9. As people live longer, the likelihood of defective genes in the population
 - a. stays the same.
 - b. decreases.
 - c. increases.
10. The concept of changing the human race through artificial selection is apt to be
 - a. a controversial issue.
 - b. limited to scientific debate.
 - c. a nonissue.

Best of Luck





Answer key

****Please answer all of the following questions in the answer sheet. (Total marks 50)**

Section One: Academic Technical Writing:

1. Restate the following using the general techniques of Summarization: (5 marks)

- The answer will vary according to the students' knowledge, and their application of the summarization techniques. (A Possible answer might be)

2. Paraphrase using different synonyms: (5 marks)

- The answer will vary according to the students' knowledge, and their application of the different synonyms. (A Possible answer might be)

The government of the United States announced that AIDS could harm the nation's security. The government warned the population after an important governmental study concluded that political problems could result from large numbers of people infected with HIV (Snell, 2005).

3. Paraphrase using different definition structures: (5 marks)

- The answer will vary according to the students' knowledge, and their application of the different definition structures. (A Possible answer might be)

Lyme disease □ a disease that causes swelling and redness □ is caused by a bacterium carried by a small arachnid known as a tick. The ticks attach to and suck the blood of animals and humans. As a tick bites, it transfers some of the Lyme disease bacteria into the animals or human. The symptoms of Lyme disease include a fever, pains in the joints, and a headache (Wald, 2005).

4. Paraphrase by changing the sentence structure, and different connecting words: (5 marks)

- The answer will vary according to the students' knowledge, and their application of the different connecting words and sentence structure. (A Possible answer might be)

Approximately 10 percent of the world's population resides in sub-Saharan Africa. However, this area of the world has the highest percentage of AIDS-related illnesses. In fact, in 2000, almost three-fourths of the population had the HIV virus (Bunting, 2004).

5. Write at least 250 words on ONLY one of the following topics. Pay attention to the organization of your ideas, vocabulary, grammar, punctuation and spelling (10 marks)

- The answer will vary according to the students' knowledge, and their application of the argumentative techniques of essay writing.

Section Two: Reading Skills:

(Reading 1) Read the following passages then answer the questions: (10 marks)

1. B 2. C 3. B 4. B 5. C 6. A 7. A 8. C 9. B 10. A

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(Reading 2) Read the following passages then answer the questions:(10 marks)

1. B 2. A 3. B 4. C 5. C 6. B 7. C 8. A 9. C 10. A

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