

PART TWO

READING COMPREHENSION

Direction Read the texts below. Then read the questions that follow them and choose the best answer to each question correspondingly among A, B, C or D.

The Evolution of Clocks

Since the beginning of time, humans have been looking for better ways to answer the age-old question: "What time is it?" The earliest humans used the position of the sun in the sky to approximate the time of day. However, this system had obvious drawbacks: you couldn't tell the exact time, you couldn't see the sun at night, and the sun could be hard to see if there was heavy cloud cover. In around 3,500 B.C., the Egyptians began to construct huge obelisks which served as primitive sundials. These huge pillars told time by casting shadows on the ground, which changed position depending on the time of day. The next great advance in timekeeping occurred in about 3,450 B.C. when a primitive hourglass was invented. This device was basically a bowl with a hole in the bottom. It had many advantages over sundials, because it would work on cloudy days and at night. However, this device required careful calibration, because the water poured out faster when the bowl was full since the water pressure was greater. Also, these devices would not work in freezing weather.

A huge advance occurred in the 1300's when mechanical clocks, which used weights or springs, began to appear. At first, they had no faces, and no hour or minute hands; rather, they struck a bell every hour. Later, clocks with hour, and then minute hands began to appear. In the 1400's, another important discovery in timekeeping was made - coiled springs were able to move the hands on a clock. This discovery made smaller clocks, and later - watches, possible.

Then, in 1656, Christian Huygens invented the pendulum clock, which used weights and a swinging pendulum. These clocks were much more accurate than previous clocks, off by less than a minute a day, compared to the 15 minutes a day of earlier clocks. The bigger the pendulum, the more accurate the clock was.

During the mid to late 1800's, many countries saw the need to create standard time zones so that everyone could agree on the time and nations could work more efficiently. In 1852, Great Britain implemented a telegraph network that transmitted "Greenwich Mean Time", so the whole country would be running on exactly the same time. Then, in 1882, the United States created 4 standard time zones, still in use today. In 1884, delegates from 25 countries met and agreed on worldwide time zones.

At the dawn of the 20th century, only women wore wristwatches. No self-respecting "real man" would wear one. However, in the first World War, soldiers wore wristwatches because taking out a pocket watch to check the time was difficult or impossible in battle. After the war was over, it was considered "socially acceptable" to wear wrist watches, and they became popular.

Recently, in 1999, scientists developed the cesium fountain atomic clock, which is off by only one second every 20 million years. Perhaps one day humans will invent a timekeeping device which is 100% accurate and never gains or loses a second, not even in billions of years. Also, as time progresses, everyday clocks will gain more features, such as the ability to automatically adjust for daylight savings time, and the ability to synchronize with atomic clocks through radio waves.

16.The earliest system used to tell time involved

- a)**monitoring shadows on the ground.
- b)**measuring water levels in a bowl.
- c)**observing the sun.
- d)**building sundials.

17.The drawback of the primitive hourglass was that

- a)**it didn't work at night.
- b)**its performance depended on by certain weather conditions.
- c)**it was not available to all.
- d)**its performance depended on careless calibration.

18.The creation of wrist watches was made possible by the discovery of

- a)**hour and minute hands.
- b)**weights and springs.
- c)**a bell that struck regularly.
- d)**coiled springs.

19Huygens's clock was

- a)**off by approximately 1 minute.
- b)**off by approximately 15 minutes.
- c)**off by approximately 15 miles.
- d)**perfectly accurate.

20Four standard time zones were created :

- a)**in 1852 by Great Britain.
- b)**in 1882 by Great Britain.
- c)**in 1882 by the USA.
- d)**in 1884 by 25 countries.

21In 1900 it was “socially acceptable” for

- a)**soldiers to wear wristwatches.
- b)**women to wear wristwatches.
- c)**for a “real man” to wear wristwatches.
- d)**for everyone to wear wristwatches.

22It is true that today we finally have

- a)**a timekeeping device that is 100% accurate.
- b)**a timekeeping device that adjusts to daylight saving time.
- c)**a timekeeping device that gains a second in 20 billion years.
- d)**a timekeeping device that loses a second in 20 million years.