広島市大　2012年

第２問

次の( 1 )～( 20 )に入る最も適当な語を，それぞれA～Dの中から選びなさい。

The sewage system in Paris, France, carries about 340 billion liters of wastewater per year. But this underground system of pipes might also ( 1 ) one of the largest unused sources of renewable energy, or energy that doesn’t disappear, in the whole city. Some scientists and city planners want to use this energy to ( 2 ) a local school.

The energy people use mostly comes from nonrenewable resources ―― sources that will ( 3 ) disappear. Some, such as oil and coal, also release large amounts of pollution into the air, which can ( 4 ) the environment. Greenhouse gases, ( 5 ) may bring about widespread climate change, are another consequence of burning oil and coal for energy. So the city of Paris has set ( 6 ) to reduce its dependence on these resources. ( 7 ) 2020, 30 percent of the city’s energy needs have to be met with green, or environment-friendly, energy. That’s ( 8 ) the sewer comes in.

( 9 ) wastewater from hot baths and showers, dishwashers, and kitchen sinks flows into the sewers every day. As a result, ( 10 ) in the city’s sewer system can be as high as 20 degrees. Engineers plan to run a pipe through the sewer, filled with a special fluid that can ( 11 ) heat. The fluid then flows into a machine in the school’s basement that circulates heat throughout the school.

Because the fluid is enclosed in a pipe, ( 12 ) waste ever leaves the sewer. That means that, ( 13 ) its smelly source, the heating should not have a bad smell.

This ( 14 ) should meet 70 percent of the school’s heating needs. If it is successful, other buildings will be fitted for the sewer treatment, ( 15 ) the presidential palace, the home of French President Nicolas Sarkozy.

The plan has problems. First, it is expensive. In addition, the sewer is 2,400 kilometers long, but the heating system can ( 16 ) only roughly 550 meters away from the sewer source. That ( 17 ) only 10 percent of the city could benefit from this energy.

This form of energy has been used successfully ( 18 ). Canada used this energy source to heat the Olympic Village in Vancouver in 2010. Sewers are good sources of other energy ( 19 ) well. Biogas, a renewable fuel source, and soil fertilizer can be taken from sewers. There are still numerous energy ( 20 ) to solve, but Paris might just have found an underground answer to one of them.

【Adapted from Tyrus Cukavac, “Paris Looks to Its Miles of Underground Sewers for Energy to Heat Buildings”, scholastic.com, April 13, 2011】

(注)

sewage 汚水

sewer 下水管

fluid 液体・気体の総称

(1) A．are B．be C．was D．were

(2) A．bring B．destroy C．estimate D．heat

(3) A．someday B．someone C．something D．somewhere

(4) A．harm B．keep C．leave D．study

(5) A．what B．which C．who D．whose

(6) A．an alarm B．a goal C．a sense D．a zone

(7) A．At B．By C．On D．To

(8) A．what B．which C．where D．whose

(9) A．Clean B．Frozen C．Solid D．Warm

(10) A．temperatures B．temptations C．tendencies D．tensions

(11) A．collect B．elect C．neglect D．respect

(12) A．all B．no C．none D．some

(13) A．as B．because C．despite D．while

(14) A．profession B．project C．pronunciation D．proverb

(15) A．include B．included C．includes D．including

(16) A．wake B．walk C．water D．work

(17) A．causes B．enters C．keeps D．means

(18) A．after B．at that time C．before D．one day

(19) A．as B．at C．so D．very

(20) A．problems B．resources C．savings D．supplies