考研英语历年真题来源报刊阅读100篇(40) 考研 PDF转换可能丢失图片或格式，建议阅读原文 https://www.100test.com/kao_ti2020/646/2021_2022__E8_80_83_E7_A0_94_E8_8B_B1_E8_c73_646860.htm From Genes to GMOs Today, genes can be isolated, identified, and cloned, then inserted into other organisms to alter their traits. The process is called genetic engineering. For this technology to develop, a few tools were necessary. In the 1970s, scientists isolated bacterial plasmids. These are hula-hoop-shaped double-stranded units of DNA that can be moved easily from one cell to another. They also discovered "scissors," called restriction enzymes for cutting the DNA into predictable, reproducible patterns. These enzymes are used to"snip apart" plasmids at very specific DNA sequences, leaving free ends that can be rejoined as the scientist chooses. Restriction enzymes occur in bacteria as part of a natural defense mechanism to guard against invading viruses. Many different types are now available, each cutting DNA at a different sequence of base pairs. Once a plasmid is snipped open, a foreign piece of DNA, cut by the same enzyme scissors, can be taped, end to end, into the plasmid using another enzyme, DNA ligase. This is the glue that sticks all the pieces together. The new plasmid is inserted back into a cell, where numerous copies can be made. Introduction of specific genetic material into rapidly reproducing target bacteria can turn the cells into miniature factories for production of useful substances. For example, when the Exxon Valdez oil freighter ran aground in 1989 and spilled thirty-eight million liters of oil, oil-eating bacteria, created

in just this manner, were used in the cleanup operation. The oil was broken down five times faster with help from the genetically modified organisms (GMOs). Plasmid technology has also been developed for moving targeted genetic material into plants. In this technique, scientists use the plasmid from a bacterium that causes tumors on plants. In nature, this bacterium transfers genetic material into plant tissues by releasing plasmids onto damaged plant cells. The plasmids enter the plant tissue and produce a swelling, or tumor. Because of this special ability to invade plant tissue, these tumor-inducing (TI) plasmids are now used routinely as "taxi cabs" to carry target genes into a wide variety of plant cells, including, for example, corn. The European corn borer is a common pest in this economically valuable crop. When pesticides are used against them, timing is critical. If sprayed too late, the corn borer will already have made a home inside the corn stem and will not be killed. CIBA Research was the first company to develop what has become commonly known as Bt corn. It contains genes that allow it to resist infestation by the corn borer. The Bt genes came from a bacterium called Bacillus thuring ensis. It produces a protein called Bt protoxin. When an insect larva eats these bacteria, the toxin contained in the bacterium attaches to the insects gut and makes holes in it, and the larva starves to death. Bt corn can be grown using less pesticide, and sometimes even no pesticide. 考研词汇：isolate[