 Controlling Robots with the Mind第四十二篇（P218）Controlling Robots with the MindBelle, our tiny monkey, was seated in her special chair inside a chamber at our Duke University lab.Her right hand grasped a joystick（计算机的控制杆） as she watched a horizontal（水平的） series of lights on a display panel（显示屏）. She knew that if a light suddenly shone and she moved the joystick left or right to correspond to its position, she would be sent a 0drop of fruit juice into her mouth.control panel.控制面板 Del.=0delete删除Ctrl.=control 控制 Shift 移动，改变Caps.Lock =capital lock 大写字母锁定键1.Belle would be fed some fruit juice if sheA.moved the joystick according to what she heardB.watched lights on a display panel.C.sat quietly in a special chair.D.moved the joystick to the side of the light.Belle wore a cap glued to her head.Under it were four plastic connectors（连接器）, which fed （释放出） arrays of microwires （—each wire finer than the finest sewing thread—） into different regions of Belles motor cortex（运动神经皮层）, the brain tissue that plans movements and sends instructions.Each of the 100 microwires lay beside a single motor neuron.When a neuron produced an electrical discharge（电流）, the adjacent microwire would capture the current and send it up through a small wiring bundle（线捆） that ran from Belles cap to a box of electronics on a table next to the booth.The box, in turn, was linked to two

computers, one next door and the other half a country away.2.According to the second paragraph, the wire fixed under the cap Belle wore were connected toA.a box of electronics and two computers.B.a booth and two computersC.a box which, in turn, was linked to two computers.D.a computer half a country away.After months of hard work, we were about to test the idea that we could reliably translate the raw electrical activity in a living beings brain Belles mere thoughts into signals that could direct the actions of a robot.We had assembled a multijointed （有许多零件拼凑而成的） robot arm in this room, away from Belles view, which she would control for the first time.As soon as Belles brain sensed a lit spot on the panel, electronics in the box （running two real-time mathematical models） would rapidly analyze the tiny action potentials produced by her brain cells.Our lab computer would convert the electrical patterns into instructions that would direct the robot arm.Six hundred miles north, in Cambridge, Mass, a different computer would produce the same actions in another robot arm built by Mandayam A.Srinivasan.If we had done everything correctly, the two robot arms would behave as Belles arm did, at exactly the same time.Finally the moment came.We randomly switched on lights in front of Belle, and she immediately moved her joystick back and forth to correspond to them.Our robot arm moved similarly to Belles real arm.So did Srinivasans.Belle and the robots moved in synchrony, like dancers choreographed by the electrical impulses sparking in Bells mind.3.Which of the following statements is NOT true of the robot arm built by Srinivasan?A.It was

six hundred miles away from where Belle was.B.It was directed by electric signals converted from the electrical activity in Belles brain.C.It could produce the same actions as another robot arm.D.It would convert the electrical patterns into instructions for another robot arm.4.Which of the following statements indicates the success of the experiments? （the fourth paragraph）A.Belle responded to the robot arms successfully.B.The two robot arms moved the joysticks in time.C.The two robot arms and Belle corresponded to the lights at the same time.D.Belle and the two robot arms were like impulsive dancers.In the two years since that day, our labs and several others have advanced neuroscience, computer science and microelectronics to create ways for rats, monkeys and eventually humans to control mechanical and electronic machines purely （=only） by “ thinking through ”, or imagining, the motions.Our immediate goal is to help a person who has been unable to move by a neurological disorder or spinal cord（骨髓）injury, but whose motor cortex is spared, to operate a wheelchair or a robotic limb.5.The final aim of the research was to help a personA.who is unable to move but whose motor cortex is not damaged.B.who can operate a wheelchair or a robotic limb.C.whose motor cortex is damaged.D.who has spinal cord injury but is able to move a wheelchair. 