Passage 1

Plague

Plague is primarily a disease of densely populated zones, households above all else, and its perpetuation and reinforcement involve complex relationship among wild rodents, bacteria, insect vector, and humans. Occasional plague outbreaks can occur almost anywhere, but for the disease to become rooted, an environment must exist which can support a high density of rodent hosts living in proximity with human beings. Endemic plague among rodents remote from human habitation poses a danger only to humans who invade those zones.

The bacterium responsible for bubonic plague is *Yersinia* (formerly *Pasteurella) pestis*, one of the most pervasive, persistent, and dangerous life forms in the world. It lives in the bloodstream of dozens of varieties of rodents (rats, ground squirrels, marmots, etc.), but it is most commonly found among rats. The simple presence of *Y. Pestis* in the rodent population has not always meant an immediate threat to humankind. Once the disease becomes epizootic among rodents in proximity to people, however, epidemic outbreaks have followed with consequences equally disastrous to humans and to the rodent hosts.

Why an epizootic starts is not clear. The bacterium begins to multiply. As it does so, it poisons its host's blood, and the rodent dies. This is why a "rat-fall", the sudden appearance of dead or dying rats has come to be regarded as the precursor of a human epidemic. The most common vector for transferring *Y. Pestis* from one body to another is the rat flea, *Xenopsylla cheopis*, though other flea types are almost as efficient. Among the some 200 known fleas which transfer plague, one of the least efficient is the human body flea (*Pulex irritans*), and it therefore seldom happens that flea-borne plague will travel from one person to another.

Feeding fleas transfer *Y. Pestis* from rat to rat or from rat to human. The flea lives in the rat's fur and feeds on blood through the skin. When the flea is on an infected rat, it draws *Y. Pestis i*nto its own stomach with the blood it ingests. In turn, the plague bacterium multiplies in the flea's stomach, eventually plugging it with live bacteria. The flea, which can no longer swallow fresh blood, regurgitates live bacteria when next it tries to feed, and those bacteria pass through the break in the skin's surface. The flea defecates as it attempts to feed, and this provides another source for infective material.

When the host rat dies and its body cools, the blocked or engorged flea moves on to the next living creature available. If that creature is humane, the flea will bite in an effort to feed, thereby introducing *Y. Pestis* into the human bloodstream. A bubonic infection follows. Rats are the essential plague incubators. Even humans dying of plague have too little of the bacterial agent in their bloodstream to continue the infective chain, and modern physicians believe that plague victims can be nursed in an open ward without danger. The exceptions are patients with pneumonic plague, where the bacteria have entered the lungs (rather than remaining in the bloodstream) to be expelled in droplets with every breath or cough. Pneumonic plague is highly contagious, and it is almost always fatal.

Vocabulary

plague *n.* 瘟疫
perpetuation *n.* 永久
rodent *n.* 啮齿动物
endemic *adj.* 地方流行的
bubonic *adj.* 腹股沟淋巴结炎的
pervasive *adj.* 遍布的，无处不在的
epizootic *adj.* 流行于家畜的,体外寄生的
multiply *vt.* 增生，增殖
infected *n.* 受感染的
incubator *n.* 孵化器

Reading Comprehension

Directions: *There are four suggested answers to each of the following questions. Choose the best one according to the passage you have just read.*

1. Rooted plague needs to be supported by an environment of _____.
   A. dense population
   B. common households
   C. dense rodent hosts living with human beings
   D. varieties of bacteria living with human beings

2. According to the passage, which of the following is NOT true about the *Yersinia pestis*?
   A. Rats most commonly carry it.
   B. It exists in the blood of many types of rodents.
   C. A rodent infection will immediately start a human plague.
   D. The plague caused by it can be equally devastating to humans and rodents.

3. Why does flea-borne plague seldom travel from one person to another?
   A. The number of the vector is not large enough.
   B. The human body fleas are not efficient enough.
   C. The rat fleas, the vector, are not efficient enough.
   D. The number of the human body fleas is not large enough.

4. The word “regurgitate” in paragraph 4 most probably means_____.
   A. draw back
   B. move out
   C. throw up
   D. reproduce.

5. According to the last paragraph, we can infer that_____

A. bubonic plague is not infectious.
B. bubonic plague is not dangerous.
C. pneumonic plague is not infectious.
D. pneumonic plague is not dangerous.

Passage 2

Knockout Blow

A breakthrough in understanding how tuberculosis (TB) lies low in the body could lead to a fast and effective cure for the disease.

TB is a growing threat as drug-resistant forms emerge. At present, a course of antibiotics lasting between 6 and 12 months is needed to cure TB. It takes this long because the existing drugs target rapidly dividing bacteria, rather than the slow-growing ones responsible for persistent infections.

But when John McKinney, who is now at the Rockefeller University in New York, reviewed research done in the 1950s, he was intrigued by a study of bacteria taken from long-infected lung tissue. Unlike Mycobacterium tuberculosis grown in the lab, these bacteria got their energy from fatty acids, not sugars.

McKinney and his colleagues then targeted the pathway bacteria use to break down fatty acids. They genetically engineered TB bacteria that lacked a key enzyme called isocitrate lyase. When they infected mice with these mutant bacteria, a normal infection developed but the animals' immune systems were able to clear the bacteria.

The results suggest that the M. tuberculosis bacterium alters its metabolism to counter the immune system's attack. McKinney and his collaborators are now studying the structure of the enzyme and are developing drugs to inhibit it. They hope to begin animal trials by the end of the year 2000.

If all goes well, TB patients could soon get the drugs that target rapidly growing bacteria along with another one that targets persistent bugs. This one-two punch could eliminate the bacteria in weeks instead of months,[4] McKinney says.

"It would be wonderful to imagine that we could treat tuberculosis like any other bacterial infection," says James Sacchettini, one of McKinney's collaborators at Texas A&M University in College Station. "If we could treat tuberculosis in two to three weeks, I think we'd have a really good chance of eradicating the disease."

Vocabulary

tuberculosis *n.* 肺结核
emerge *vi.* 出现，形成
screen *v.* 筛选
persistent *a.* 持续久]的，持久的
intrigue *vt.* 激起…兴趣
isocitrate lyase 异柠檬酸(裂合)酶
metabolism *n.* 新陈代谢
inhibit *v.* 抑制
target *v.* 瞄准； 把...作为目标[对象]
eliminate *v.* 消除，排除
eradicate *v.* 根除

Reading Comprehension

Directions: *There are four suggested answers to each of the following questions. Choose the best one according to the passage you have just read.*

1. According to the passage it may take less time to cure TB if
   A. drug-resistant forms emerge.
   B. tuberculosis lies low in the body.
   C. antibiotics can target slow-growing bacteria.
   D. antibiotics can target rapidly dividing bacteria.

2. The bacteria studied in the research viewed by McKinney are different from Mycobacterium tuberculosis grown in the lab in
   A. their fatty content.
   B. ability to infect mice.
   C. their source of energy.
   D. effect on animal's immune system.

3. The drug that McKinney and his collaborators are developing works directly by
   A. controlling isocitrate lyase.
   B. clearing the bacteria in the body.
   C. countering the immune system's attack.
   D. altering the structure of the TB bacteria.

4. "One-two punch" used in the passage refers to
   A. one of the two ways to treat TB.
   B. two different kinds of bacterium.
   C. a combination of two different kinds of drugs.
   D. one to two punctures caused by TB in the lung.

5. The passage suggest success of McKinney and his collaborators in their study will result in
   A. a shortened course to cure TB.
   B. giving up the use of existing drugs.
   C. eradication of other infections as well as TB.
   D. application of the drug under development to treat other infections.

Passage 3

Directions: There are 10 blanks in the following passage. For each blank there are four choices marked **A**, **B**, **C**, and **D**. You should choose the ONE that best fits into the passage.

There is increasing _1_ that remotely monitoring patients with heart failure using information technology can help improve outcomes and quality of care. Integrating such telemonitoring into existing health care _2_ is challenging. The technology used varies from simple to complex, although the _3_ of the data to the health care team is straightforward. The best method of displaying the data is _4_ to be determined, as is the best combination of variables to monitor. Patient acceptability is rarely a problem, but reimbursement of the costs associated with telemonitoring is often a barrier to implementation.

Patients with heart failure are often elderly, have decreased _5_ and have less social support. This can make clinic _6_ difficult. Local review by the family doctor may be more convenient, but the primary care team may lack the specialist knowledge and experience to _7_ monitor heart failure. Home visit by a specialist nurse is helpful but expensive, and few health care systems can provide this service for any length of time.

Telehealth has the potential to improve _8_ to high-quality disease management, and telemonitoring has developed rapidly over the past decade. In the simplest model, a patient receives support from a health care professional _9_ the telephone. The patient monitors his or her symptoms and weight and reports these during a _10_ structured telephone call.

1.	A. evidence	B. incidence	C. occurrence	D. relevance
2.	A. exercise	B. practice	C. training	D. career
3.	A. transmission	B. transfusion	C. transcription	D. translation
4.	A. not	B. none	C. yet	D. still
5.	A. mobility	B. morbidity	C. mortality	D. morality
6.	A. appearance	B. attendance	C. activities	D. task
7.	A. occasionally	B. possibly	C. easily	D. optimally
8.	A. acceptance	B. entry	C. access	D. entrance
9.	A. in	B. over	C. by	D. with
10.	A. lectured	B. structured	C. constructed	D. nurtured