

25 - 3

医学部医学科英語入試問題

下記の注意事項をよく読んで解答してください。

◎注意事項

1. 配付された問題冊子および解答用マークシート (受験番号のマークの仕方) に、それぞれ受験番号(4桁)ならびに氏名を記入し、解答用マークシートの受験番号欄に自分の番号を正しくマークしてください。
2. マークには必ずHBの鉛筆を使用し、濃く正しくマークしてください。
 記入マーク例：良い例 ●
 悪い例 ○ ⊖ ⊙ ⊚
3. マークを訂正する場合は、消しゴムで完全に消してください。
4. 所定の記入欄以外には何も記入しないでください。
5. 解答用マークシートを折り曲げたり、汚したりしないでください。
6. 「止め」の合図があったら、問題冊子の上に解答用マークシートを重ねて置いてください。

受験番号			
千	百	十	一
0	0	7	2

受験番号			
千	百	十	一
●	●	○	○
①	①	●	①
②	②	②	●
③	③	③	③
④	④	④	④
⑤	⑤	⑤	⑤
⑥	⑥	⑥	⑥
⑦	⑦	⑦	⑦
⑧	⑧	⑧	⑧
⑨	⑨	⑨	⑨

受験番号 氏名

◇M3(104-60)

[I] 次の英文を読み、後に続く設問 1. ~15. に最も適する答えを a. ~ d. の中から一つ選びなさい。

Lyme disease, which is also known as Lyme borreliosis, is an infection transmitted by the bite of ticks carrying the spiral-shaped bacterium (spirochete) *Borrelia burgdorferi* (Bb). The disease was named for Old Lyme, Connecticut, the town where it was first diagnosed in 1975, after a puzzling outbreak of arthritis. The spiral-shaped bacterium was named for its discoverer, Willy Burgdorfer. The effects of this disease can be long-term and disabling, unless it is recognized and treated properly with antibiotics.

(1) Lyme disease is a vector-borne disease, which means it is delivered from one host to another. It is also classified as a zoonosis, which means that it is a disease of animals that can be transmitted to humans under natural conditions. In this case, a tick bearing the Bb organism literally inserts it into a host's bloodstream when it bites the host to feed on its blood. It is important, however, to note that neither Bb nor Lyme disease can be transmitted directly from one person to another.

In the United States, Lyme disease accounts for more than 90% of all reported vector-borne illnesses. It is a significant public health problem and continues to be diagnosed in increasing numbers. The Centers for Disease Control and Prevention (CDC) attributes this increase to the growing size of the deer herd and the geographical spread of infected ticks rather than to improved diagnosis. In addition, some epidemiologists believe that the actual incidence of Lyme disease in the United States may be 5-10 times greater than that reported by the CDC. The reasons for this difference include the narrowness of the CDC's case definition as well as frequent misdiagnosis of the disease.

Controversy clouds the true incidence of Lyme disease because no test is definitively diagnostic for the disease, and many of its symptoms mimic those

— 1 —

◇M3(104-61)

of so many other diseases. Cases of Lyme disease have been reported in 49 of the 50 states; however, 92% of the 17,730 cases reported to the CDC in 2000 were from only nine states (Connecticut, Rhode Island, New York, Pennsylvania, Delaware, New Jersey, Maryland, Massachusetts, and Wisconsin). The disease is also found in Scandinavia, continental Europe, the countries of the former Soviet Union, Japan, and China; in addition, it is possible that it has spread to Australia.

The risk for **acquiring** Lyme disease varies, depending on what stage in its life cycle a tick has reached. A tick passes through three stages of development — larva, nymph, and adult — each of which is dependent on a live host for food. In the United States, Bb is borne by ticks of several species in the genus Ixodes, which usually feed on the white-footed mouse and deer (and are often called deer ticks). In the summer, the larval ticks hatch from eggs laid in the ground and feed by attaching themselves to small animals and birds. At this stage they are not a problem for humans. It is the next stage — the nymph — that causes most cases of Lyme disease. Nymphs are very active from spring through early summer, at the height of outdoor activity for most people. Because they are still quite small (less than 2 mm in length), they are difficult to **spot**, giving them ample opportunity to transmit Bb while feeding. Although far more adult ticks than nymphs carry Bb, the adult ticks are much larger, more easily noticed, and more likely to be removed before the 24 hours or more of continuous feeding needed to transmit Bb.

1. The word “disabling” in line 7 is closest in meaning to
 - a. crippling
 - b. soothing
 - c. presenting
 - d. disarming

2. The word “bearing” in line 11 is closest in meaning to
 - a. carrying
 - b. enduring
 - c. producing
 - d. acquiring
3. The word “literally” in line 11 is closest in meaning to
 - a. dangerously
 - b. constantly
 - c. temporarily
 - d. actually
4. The word “attributes” in line 18 probably means
 - a. give the characteristics of something.
 - b. distribute something over a large area.
 - c. give the reason for something.
 - d. make something happen more.
5. The word “incidence” in line 21 probably means
 - a. the risk of getting a disease.
 - b. the way a person catches a disease.
 - c. the diagnosis of a disease.
 - d. the rate of occurrence of a disease.
6. The word “mimic” in line 26 is closest in meaning to
 - a. anticipate
 - b. accompany
 - c. resemble
 - d. cause

7. The word "acquiring" in line 34 is closest in meaning to
- a. earning
 - b. resisting
 - c. contracting
 - d. securing
8. The word "spot" in line 45 is closest in meaning to
- a. mark
 - b. notice
 - c. clear up
 - d. remove
9. According to the text, Lyme disease was named after
- a. its discoverer.
 - b. a type of arthritis.
 - c. a town.
 - d. a tick.
10. According to the text, Lyme disease can be directly transmitted
- a. by a tick bite.
 - b. from human to human contact.
 - c. from deer to humans.
 - d. all of the above.
11. According to the text, the rising number of cases of Lyme disease is probably due to
- a. improved diagnosis of the disease.
 - b. an increase in the deer population.
 - c. greater reporting of the disease by the CDC.
 - d. restricted geographical distribution of infected ticks.

12. According to the text, Lyme disease is
- a. the most common vector-borne disease in the US.
 - b. difficult to diagnose.
 - c. found in many parts of the world.
 - d. all of the above.
13. According to the text, in which stage are ticks least likely to transmit Lyme disease?
- a. in the larval stage
 - b. in the nymph stage
 - c. in the adult stage
 - d. all stages are equally dangerous
14. According to the text, the risk of catching Lyme disease is greatest
- a. in the late summer.
 - b. in the spring and early summer.
 - c. during the first 24 hours of tick contact.
 - d. during the tick's adult stage.
15. What information is not discussed in this text?
- a. where Lyme disease can be found
 - b. how Lyme disease is transmitted
 - c. the definition of Lyme disease
 - d. the specific symptoms of Lyme disease

〔Ⅱ〕 次の英文を読み、後に続く設問 16. ~30. に最も適する答えを a. ~ d. の中から一つ選びなさい。

Tendinitis is a condition caused by the tearing of tendon fibers and subsequent inflammation in the tendon. When a muscle contracts, it pulls on the tendon, which is composed of tissue that cannot stretch. The tendon then transmits that pulling force to the bone and moves the bone, producing movement. Tendinitis usually results from excessive repeated demands placed on the tendon by the muscle. Tendinitis is not usually caused by a sudden injury; it is more commonly a result of a long period of overuse. Tendinitis occurs frequently with active individuals and those whose occupational tasks require repetitive motion. Tendons that commonly become inflamed include: tendons of the hand, tendons of the upper arm that affect the shoulder, tendons of the forearm at the elbow, the tendon of the quadriceps muscle group at the knee, and the Achilles tendon at the ankle.

Repeated overuse of the tendon will cause small tears to develop in the tendon fibers. As a result, the body will initiate the injury repair process in the area and lay down scar tissue. Inflammation increases the blood supply, bringing nutrients to the damaged tissues along with infection-fighting agents. The result is swelling, tenderness, pain, and heat. Redness may occur if the injury is close to the skin. Since many cases of tendinitis result from chronic inflammatory conditions that develop from long periods of overuse, the inflammatory process is not as exaggerated as with an acute injury. Therefore, swelling, heat, and redness are not always visible in a tendinitis complaint because the inflammation is really at a low level.

Recent research has found that tendinitis sometimes develops as a side effect of treatment with quinolones, which are a group of antibiotics

frequently used to treat bacterial infections, and the tendinitis usually develops within the first few weeks of antibiotic treatment.

Tendinitis is most often diagnosed by evaluating factors in the patient's history that indicate muscular overuse. Tendinitis will often develop when an individual suddenly increases his or her level of activity without adequate training or conditioning. This occurs frequently in occupational and recreational settings.

In addition to evaluating factors in the patient's history that are likely to lead to tendinitis, the clinician may use several physical examination procedures. Most tendons are near the surface of the skin and therefore can be easily palpated (touched or pressed in order to make a diagnosis), especially by practitioners of manual therapy who have highly developed palpation skills. Pressure placed directly on these tendons is likely to cause discomfort. In addition, the practitioner may ask the patient to contract the muscle attached to the tendon, usually against resistance, to see if this maneuver causes pain.

16. The word "subsequent" in line 2 is closest in meaning to

- a. alternative
- b. preliminary
- c. resulting
- d. posterior

17. Which of the following is most appropriate for underlined part (17)?

- a. The strong bone that muscle connect to tendons are connective tissues.
- b. Tissues are the strong connective that connect bone muscle to tendons.
- c. Tendons are the strong connective tissues that connect muscle to bone.
- d. Muscle connective tissues are the strong tendons that connect to bone.

18. The word "demands" in line 6 is closest in meaning to
- loads
 - desires
 - actions
 - concessions
19. The word "repetitive" in line 9 is closest in meaning to
- restrictive
 - recurring
 - replaceable
 - redundant
20. Look at the blanks [a], [b], [c] and [d] in the passage. Insert the following sentence in the correct blank. **Inflammation will develop in the area as part of the injury repair process.**
- [a]
 - [b]
 - [c]
 - [d]
21. Which of the following sentences is the closest in meaning to underlined part (2)?
- Therefore, the main complaint of tendinitis is that the swelling, heat, and redness may not be visible unless the inflammation is at a low level.
 - Even though the tendinitis is at a low level, it produces very noticeable swelling, heat, and redness that often cause the patient to complain.
 - The main complaint about tendinitis is that it produces swelling, heat, and redness without visible signs, which cause a low level of inflammation.
 - The inflammation in tendinitis may not be severe and, as a result, the redness, heat, and swelling usually associated with inflammation sometimes are not noticeable.

22. The phrase "side effect" in line 25/26 is closest in meaning to
- cause
 - substitution
 - consequence
 - precursor
23. Which of the following should go in underlined part (3)?
- The tendon most likely to be affected by these drugs is the Achilles tendon
 - The tendon drugs to be likely most affected by these is the Achilles tendon
 - The most likely to be affected by these drugs tendon is the Achilles tendon
 - The tendon most likely affected by these drugs to be is the Achilles tendon
24. The word "factors" in line 34 is closest in meaning to
- appearances
 - adjustments
 - calculations
 - elements

25. Which of the following sentences is the closest in meaning to underlined part ②5?
- a. The practitioner will check to see if the patient experiences pain when flexing the affected muscle, especially when pushing or pulling against something.
 - b. The patient will try to contract the muscle attached to the tendon when the practitioner asks him or her, but may not be able to if there is too much resistance.
 - c. The practitioner will check to see whether or not the patient can contract the muscle, and sometimes the patient will want to resist because of the pain.
 - d. The practitioner will ask the patient if he or she feels resistance when the muscle attached to the affected tendon is contracted painfully.
26. According to the text, tendinitis most commonly develops
- a. as a result of a sudden injury.
 - b. when people stop training or conditioning suddenly.
 - c. if people are not active enough.
 - d. when people use the same muscles too much.
27. Which tendons are not mentioned as being commonly affected by tendinitis?
- a. tendons of the hand
 - b. tendons of the forearm
 - c. tendons of the neck
 - d. tendons of the upper arm that affect the shoulder

28. According to the text, why is the inflammatory process of tendinitis not as exaggerated as it is with an acute injury?
- a. Because tendinitis happens close to the skin.
 - b. Because the factors that cause tendinitis develop over time.
 - c. Because the inflammation in tendinitis increases the blood supply.
 - d. Because the inflammation in tendinitis causes swelling, redness, and heat.
29. According to the text, how is tendinitis usually diagnosed?
- a. Tendinitis is usually diagnosed by looking at the patient's history and by physical examination.
 - b. Tendinitis is usually diagnosed by examining the patient's level of activity and training.
 - c. Tendinitis is usually diagnosed by checking for areas of inflammation.
 - d. Tendinitis is usually diagnosed by contracting the muscles with the most resistance.
30. According to the text, palpation is sometimes used to check for tendinitis because
- a. most practitioners have highly developed palpation skills.
 - b. the patient may have difficulty contracting his or her muscles.
 - c. other forms of diagnosis cause too much discomfort to the patient.
 - d. tendinitis is easy to evaluate by palpation.

〔Ⅲ〕 次の英文を完成させるために、31.～35.までの下線部に入る最も適した語句を a.～d.の中から1つ選びなさい。

Sometimes you're not in the mood for a physical exam, PET scan, or full genetic analysis — but you'd still like a ballpark sense of how you're holding up. For that, there's walking, says Stephanie Studenski, MD, at the University of Pittsburgh. Her study on ambulation among the elderly showed that the faster someone 65 years or older covered a short distance, _____
 “The difference was so dramatic,” said columnist Derrick Z. Jackson in the *Boston Globe*, “_____ the chance of living another ten years for 75-year-old men, depending on their gait speed, _____ a low one-in-five chance to a nearly guaranteed nine-in-ten. For 75-year-old women, chances ranged from one in three to nine in ten.”

You can't cheat the reaper by consciously trying to walk faster, Dr. Studneski says — speed is just a marker. But you can tune things up by picking up the pace _____ you're still able. For that, a few tips from *The Complete Guide to Walking*: Take smaller, faster steps, not longer ones. Swing your arms faster (but don't go crazy — keep them close to your side), and breathe naturally. _____ you choose to chew gum at the same time is up to you.

- 31. a. they can expect to live longer
- b. the person could expect to live longer
- c. the longer he or she could expect to live
- d. the sooner they could be expected to live

- 32. a. until
- b. if
- c. given
- d. that

- 33. a. ranged from
- b. ranged in
- c. ranging from
- d. ranges

- 34. a. although
- b. while
- c. by that
- d. unless

- 35. a. All
- b. What
- c. Which
- d. Whether

[IV] 次の英文を読み、後に続く設問 36. ~45. に最も適する答えを a. ~ d. の中から一つ選びなさい。

Cholesterol is a waxy substance that is present in the blood plasma and in all animal tissues. Chemically, cholesterol is an organic compound belonging to the steroid family; its molecular formula is $C_{27}H_{46}O$. In its pure state it is a white, crystalline substance that is odorless and tasteless. Cholesterol is essential to life; it is a primary component of the membrane that surrounds each cell, and it is the starting material or an intermediate compound from which the body synthesizes bile acids, steroid hormones, and vitamin D. Cholesterol circulates in the bloodstream and is synthesized by the liver and several other organs. Human beings also ingest considerable amounts of cholesterol in the course of a normal diet. A compensatory system regulates the amount of cholesterol synthesized by the liver, with the increased dietary intake of cholesterol resulting in the liver's decreased synthesis of the compound.

High levels of cholesterol in the bloodstream are an extremely important cause of atherosclerosis. In this disorder, deposits of cholesterol and other fatty substances circulating in the blood accumulate in the interior walls of the blood vessels. These fatty deposits build up, thicken, and become calcified, eventually converting the vessel walls to scar tissue. The deposits narrow the channels of the blood vessels and thus can constrict the blood flow, causing heart attacks and strokes. High levels of cholesterol in the blood (more than 240 mg of cholesterol per 100 cc of blood plasma) accelerate the buildup of cholesterol deposits in the vessel walls; people with high cholesterol levels thus eventually become more susceptible to coronary heart disease.

Cholesterol is insoluble in the blood; it must be attached to certain protein complexes called lipoproteins in order to be transported through the bloodstream. Low-density lipoproteins (LDLs) transport cholesterol from its

site of synthesis in the liver to the various tissues and body cells, where it is separated from the lipoprotein and is used by the cell. High-density lipoproteins (HDLs) may possibly transport excess or unused cholesterol from the tissues back to the liver, where it is broken down to bile acids and is then excreted. Cholesterol attached to LDLs is primarily that which builds up in atherosclerotic deposits in the blood vessels. HDLs, on the other hand, may actually serve to retard or reduce atherosclerotic buildup.

36. The word "ingest" in line 9 is closest in meaning to
- a. diet
 - b. become fat
 - c. synthesize
 - d. consume
37. The word "synthesis" in line 12 is closest in meaning to
- a. production
 - b. reduction
 - c. charge
 - d. excretion
38. The word "constrict" in line 19 is closest in meaning to
- a. condense
 - b. move
 - c. limit
 - d. expand

39. The phrase "susceptible to" in line 23 is closest in meaning to
- subjected to
 - resistant to
 - unlikely to get
 - likely to get
40. The word "excreted" in line 31 is closest in meaning to
- destroyed
 - traded
 - absorbed
 - expelled
41. According to the text, cholesterol is
- necessary for liver function.
 - the main ingredient of cell membranes.
 - synthesized from bile acids.
 - all of the above.
42. According to the text, the amount of cholesterol synthesized by the liver
- goes down as the amount ingested goes up.
 - is unaffected by dietary intake.
 - is compensated for by the regulation of the circulation of the bloodstream.
 - is affected by the presence of atherosclerosis in the walls of the blood vessels.
43. According to the text, high levels of cholesterol in the blood increase the risk of coronary heart disease by
- making people more suspicious.
 - slowing the buildup of deposits in the vessel walls.
 - speeding up the accumulation of fatty deposits.
 - decreasing the susceptibility to heart attacks and strokes.
44. According to the text, cholesterol needs lipoproteins in order to
- synthesize in the liver.
 - be carried through the bloodstream.
 - form protein complexes.
 - be absorbed into the blood.
45. According to the text, what do high-density lipoprotein complexes possibly do?
- contribute to atherosclerosis
 - carry leftover cholesterol to the liver
 - break down bile acids and are then excreted
 - both b and c

[V] 次の2つの英文を読み、それぞれの英文を完成させるために、46.～55.の下線部に入る最も適した語句をa.～d.の中から1つ選びなさい。

The most extreme objects in the universe tend to put on spectacles. When a giant star (46) as a supernova, it can outshine its own galaxy as it dishes out heat, X-rays, and the highest energy radiation of all, gamma rays. So when NASA launched a gamma-ray telescope into space in 2008, astronomers figured the high-energy radiation it (47) would point the way to easily identifiable supernova remnants, black holes and other extroverted objects.

They couldn't have been more wrong. Last January, after a (48) survey, scientists with the Fermi Gamma-ray Space Telescope released a list of nearly 500 locations where the spacecraft detected the highest-energy gamma rays. More than a third of them cannot be linked to any known astronomical object. The 169 mystery sources might be previously undiscovered supernova remnants or black holes, or they could be a completely new type of superpowerful object. For now, they are total enigmas. "These are the dogs that don't bark," NASA astrophysicist David Thompson says.

Astronomers are starting out with the simple explanation that they overlooked these objects in previous surveys. They are analyzing X-ray, optical, radio, and infrared (49) of the hot spots to see if they missed something. But Thompson hopes the answers are more (50). The gamma rays might be a byproduct of decaying clumps of invisible dark matter, he says, or of something unknown. "That's what we're really interested in. Not just more of the same, but new types of systems."

46. a. escalates b. explodes c. emits d. entropy
 47. a. emitted b. leaked c. detected d. expended

48. a. three-years sky b. three-year sky
 c. three-year-sky d. three-years-sky
 49. a. sounds b. movies c. graphs d. images
 50. a. terrifying b. unable c. exotic d. conservative

Deep in the frozen tundra of north-eastern Siberia, a squirrel buried fruits some 32,000 years ⁵¹ _____ from a plant that bore white flowers. This winter a team of Russian scientists announced that they had unearthed the fruit and brought tissue from it back to _____. The fruits are about 30,000 years older than the Israeli date palm seed that previously held the record as the oldest tissue to give life to healthy plants.

The researchers were studying ancient soil composition in an exposed Siberian riverbank in 1995 when they discovered the first of 70 fossilized Ice Age squirrel burrows, some of _____ stored up to 800,000 seeds and fruits. Permafrost had preserved tissue from one species—a narrow-leaved campion plant—exceptionally well, so researchers at the Russian Academy of Sciences recently decided to culture the cells to see if they would grow. Team leader Svetlana Yashina re-created Siberian _____ in the lab and watched as the refrigerated tissue sprouted buds that developed into 36 flowering plants _____ weeks.

This summer Yashina's team plans to revisit the tundra to search for even older burrows and seeds.

- 51. a. before b. since c. ago d. from
- 52. a. earth b. home c. basics d. life
- 53. a. whom b. whose c. who d. which
- 54. a. conditions b. heat c. posture d. fashion
- 55. a. from b. within c. since d. by

(VI) 空所に下の選択肢 a. ~ e. から最も適当な語を補い、日本文に合うように各文を完成させなさい。ただし解答は、56~65 に入るもののみをマークしなさい。

It may make you scratch your head, but in fact it is possible to overeat healthy food, according to Loyola University Health System registered dietitian Brooke Schantz. "While fruits are nutritious, too much of even a () (56) () (57) ()," Schantz said. "The key is to remember to control the portion sizes of the foods you consume."

Schantz reported that overeating healthy foods is easy to do, but the same rules apply to healthy food as junk food. Weight fluctuates based on a basic concept—energy in versus energy out. If your total () (58) () (59) () you burn off in a day, you will gain weight. If it is lower, you will lose weight.

"I have had many patients tell me that they don't know why they are not losing weight," Schantz said. "Then they report that they eat fruit all day long. They are almost always shocked when I advise them to watch the quantity of food they eat even if it is healthy."

Schantz said that one exception applies. Nonstarchy () (60) () (61) () they are accompanied by unnecessary calories from sauces, cheeses and butter. This is due to the high water and fiber content of these vegetables coupled with the stretching capacity of the stomach. The vegetables she suggested limiting are () (62) () (63) () starch, such as peas, corn and potatoes. Foods that are labeled as fat-free or low-fat are another area of concern.

"People tend to give themselves the freedom to overeat 'healthy' foods," Schantz said. "While the label might say that a food or beverage is low-fat or fat-free, watch the quantity you () (64) () (65) () an excessive amount. Foods that carry these health claims may be high in sugar and calories."

「果物は栄養価があるとはいえ、健康に良い食品でも過度になると体重増加につながる可能性が高い」とシャンツは述べた。

While fruits are nutritious, too much of even a () (56) () (57) (), Schantz said.

- a. gain b. lead to c. weight d. can e. healthy food

一日に使い果たすエネルギーより総カロリー摂取量が高くなれば体重が増加する。

If your total () (58) () (59) () you burn off in a day, you will gain weight.

- a. the energy b. intake c. is
d. caloric e. higher than

ソース、チーズ、バターなどの不要なカロリーが添加されていない限り、非でんぷん質野菜は過度には摂取し難いのである。

Nonstarchy () (60) () (61) () they are accompanied by unnecessary calories from sauces, cheese and butter.

- a. to overeat b. are c. unless
d. vegetables e. difficult

彼女が摂取制限を勧める野菜とは、でんぷんの多いもので、エンドウ豆、トウモロコシ、ジャガイモなどである。

The vegetables she suggested limiting are () (62) () (63) () starch, such as peas, corn and potatoes.

- a. that b. in c. high d. are e. those

食べ物や飲み物に低脂肪や無脂肪と表示してあったとしても、摂取する量に注意して、過剰な量を食べるのを控えなさい。

While the label might say that a food or beverage is low-fat or fat-free, watch the quantity you () (64) () (65) () an excessive amount.

- a. refrain b. consume c. eating d. and e. from

〔VII〕

下線部の発音が他と異なるものを, a. ~ d. の中から1つ選びなさい。

66. a. figure b. collagen c. genome d. allergy

67. a. stadium b. damage c. label d. ache

68. a. doughnut b. drought c. thigh d. tough

69. a. rhythm b. smooth c. through d. worthy

70. a. mechanism b. moustache c. character d. scheme

第1アクセントの母音の発音が, 見出しの語の第一アクセントの母音の発音と同じものを, a. ~ d. から1つ選びなさい。

71. ion
a. fatigue b. virus c. machine d. image

72. phenomenon
a. located b. delicate c. tolerate d. tomb

73. hurt
a. hamburger b. certain c. warm d. hard

74. dynamic
a. isolate b. quiet c. incident d. accident

75. host
a. don't b. molecule c. hotel d. procedure