26 － 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。

（受験番号のマークの仕方）

受験番号			
千	百	十	一
0	0	1	2

受験番号			
千	百	十	一
●	●	⓪	⓪
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(123—70)

1 次の英文を読み，設問1．～16.に最も適する答えを，a．～d．の中から一つ選べ。

Itai-itai disease refers to a **syndrome** that principally consists of a painful skeletal condition resulting from (1) weak and deformed bones. The disease is characterized initially by complaints of spinal and leg bone pain, and an increasingly waddling gait due to bone deformities. (2) These symptoms can persist and typically progress for several years, until the patient is eventually unable to walk and becomes bedridden. The clinical symptoms then progress rapidly, with eventually severe debilitating pain, multiple bone fractures from even mild traumas such as coughing, severe skeletal deformities, anemia, and severe kidney problems, leading to death. Itai-itai disease was first recognized in the 1940s and is a unique condition largely **restricted** (3) to older, postmenopausal women in Japan in the Jinzu river basin region.

It has long been suspected that one primary contributor to itai-itai disease was **chronic** (4) cadmium poisoning. [a] _____ The mining resulted in substantial pollution (5) of the local river waters, which in turn led to pollution of the rice fields downstream with very high cadmium levels in both the water and soil. [b] _____ Cadmium is readily taken up by rice and other plants and by people from dietary sources. [c] _____ Since rice was and still remains a principal dietary component in rural Japan, this led to significant exposure of the residents to very high cadmium levels over a long period of time. [d] _____

The body stores cadmium in the liver, kidney, and other tissues in a special protein called metallothionein, which normally stores the essential metals zinc and copper. But cadmium binds metallothionein even more tightly and **displaces** (6) these metals. Cadmium can also substitute for zinc, copper, and other biologically important metals in many of the critical proteins of the cell that use these elements for their normal function, resulting in abnormal biochemical functioning of these proteins and cell toxicity or cell death. This

eventually leads to a decrease in function of these tissues and organs. Chronic or high-dose cadmium exposure is particularly toxic to the kidney, (7) and this can lead to poor absorption of calcium, which is required for healthy bones. Long-term cadmium exposure is also associated with increased risk of lung cancer in occupationally exposed people, as well as other clinical conditions.

However, it is now clear that there were other contributing factors that limited the development of the specific clinical condition known as itai-itai disease to this particular subset of Japanese women, since other individuals do not exhibit itai-itai disease even though they have signs of cadmium poisoning. Other factors likely include the general **malnourishment** and poor calcium metabolism of these women, their (8) advanced age, and their gender. Postmenopausal women in general are at increased risk of osteoporosis and other calcium-related disorders. In particular, estrogen has been shown to play an important role in contributing to calcium metabolism, and poor nutrition can dramatically increase **this risk**. The diminutive size of these women may have also contributed, (9) and for reasons that are not entirely clear, multiparous women (that is, women who had given birth to several children) in this population were at greatest risk of the disease. Recent studies in animal models have **confirmed** that exposure to cadmium alone can cause some aspects of (10) this disease but that several of these other factors must also be present to **elicit** a syndrome more closely resembling the complete pattern of itai-itai (11) disease. A recent animal study demonstrated that damage to the mitochondria of the kidney cells by cadmium was a key causal event in the progression of this disease.

1. The word "syndrome" in line 1 is closest in meaning to
   a. pollution
   b. disorder
   c. origin
   d. circumstance

2. Which of the following sentences is closest in meaning to the underlined part?

a. The patient can carry on for few years as the signs of the disease improve, but eventually the patient will get worse and have to remain in bed.

b. The disease might continue for some years, but the patient can become better by staying in bed and not walking.

c. The patient could ultimately be confined to bed and incapable of walking as the symptoms of the disease become worse year after year.

d. The symptoms of the disease might go on for a few years without changing, but the patient may lose the ability to walk from spending too much time in bed.

3. The word "restricted" in line 10 is closest in meaning to

a. fixed

b. limited

c. checked

d. restrained

4. The word "chronic" in line 13 is closest in meaning to

a. routine

b. painful

c. persistent

d. dangerous

5. Look at blanks [a], [b], [c], and [d] in the passage. Insert the following sentence into the correct blank. **The residents of the Jinzu river basin region were first exposed to cadmium in the 1930s as a result of industrial contamination of the environment from nearby intensive mining activities.**

a. [a]

b. [b]

c. [c]

d. [d]

6. The word "displaces" in line 23 refers to

a. zinc and copper displacing cadmium

b. cadmium displacing zinc and copper

c. cadmium displacing metallothionein

d. metallothionein displacing cadmium

7. Which of the following sentences is closest in meaning to the underlined part?

a. Large amounts of cadmium in the system will turn the calcium in the kidneys into poison, which is then absorbed into the bones, putting them at risk.

b. The health of bones can be put at risk by high levels of cadmium because it can damage the kidneys and so reduce the body's ability to take in calcium.

c. Exposure to toxic cadmium can prevent the bones from absorbing calcium, thus injuring the kidney and reducing the health of the bones.

d. Chronic exposure to cadmium is needed for healthy bones, but it can also cause problems for the kidney if too much calcium is absorbed.

8. The word "malnourishment" in line 36 probably means

a. not being very tall

b. sick from overwork

c. having poor physical health

d. having poor nutrition

9. What does the phrase "this risk" in line 41 refer to?

a. itai-itai disease

b. poor nutrition

c. estrogen problems

d. calcium-related disorders

10. The word "confirmed" in line 45 is closest in meaning to

a. verified

b. completed

c. fixed

d. disproved

11. The word "elicit" in line 47 is closest in meaning to

a. obtain

b. trigger

c. prove

d. deduce

12. What was not mentioned in the text as a symptom of itai-itai disease?

a. kidney problems

b. vomiting

c. debilitating pain

d. anemia

13. According to the text, cadmium inhibits tissue and organ function by
   a. destroying critical proteins such as metallothionein.
   b. attracting too much zinc and copper.
   c. substituting for important metals in cell proteins.
   d. reducing cell toxicity.

14. According to the text, why were women in the Jinzu river basin particularly affected by itai-itai disease?
   a. Women in this region were generally more advanced than other people who got cadmium poisoning.
   b. Women in this region were the most exposed to cadmium poisoning.
   c. Women in this region tended to have poor calcium metabolism and inadequate nutrition in addition to cadmium poisoning.
   d. Women in this region ate more contaminated rice and other plants, leading to a very high level of cadmium poisoning.

15. Why is cadmium poisoning alone not thought to cause itai-itai disease?
   a. Because not all victims of itai-itai disease had cadmium poisoning.
   b. Because only women who had had many children caught the disease.
   c. Because some areas of Japan outside of the Jinzu river basin also had many victims of itai-itai disease.
   d. Because some other people had cadmium poisoning but did not have itai-itai disease.

16. According to the text, what circumstance in addition to cadmium exposure is needed to cause itai-itai disease to progress?
   a. weak and deformed bones
   b. eating food poisoned with high levels of cadmium
   c. having too many children at an old age
   d. damage to kidney cells

2 次の英文を読み，設問 17. ～30. に最も適する答えを，a. ～d. の中から一つ選べ。

A spoonful of honey can do more than just satisfy your sweet tooth — it might improve your health. For centuries, the natural sweetener has served as a versatile healing agent. Folk remedies featuring honey have long been used to treat **ailments** ranging from the common cold to constipation.

(17)

After the development of antibiotics and other modern drugs, honey fell from favor as a medicinal agent in the 1940s, but lately, it's making a comeback. A growing body of scientific evidence proving the health benefits of honey is putting this ancient remedy back into modern day medicine chests. In a recent issue of the International Journal of Clinical Practice, researchers reviewed 18 studies on honey performed over the past 60 years. They concluded that the natural sweetener appears to be a viable treatment for surgical wounds, (18)_____.

Hydrogen peroxide and other ingredients in honey make it useful for **sterilizing** infected wounds and preventing infection. When used as a topical (19)

dressing, it reduced amputation rates among diabetic patients. Honey has been shown to have **potent** antibiotic properties. Scientists have discovered (20)

that it naturally produces hydrogen peroxide, a substance capable of killing disease-causing bacteria.

Its high **concentration** of sugar, low moisture content and acidic pH (21)

create an inhospitable environment for invading organisms. Because it fights bacteria in numerous ways, it's ideal for combating superbugs that have developed resistance to standard antibiotics. Additional natural ingredients appear to reduce inflammation and speed the repair of damaged tissue. Honey covers injured tissue with a thick, protective barrier, preventing **contamination** with dirt and germs. (22) (23)_____ As an added bonus, it's far less expensive than comparable medicinal products.

Researchers in India found that when burn victims' wounds were treated with honey, they experienced less pain and scarring than those treated with more **conventional** (24) medications. Superficial burns covered with honey-laden skin dressings healed far faster than those treated with silver sulfadiazine, an ointment commonly prescribed for mild to moderate burns.

While honey's antibiotic properties help **promote** (25) faster wound healing, its antifungal properties can provide relief for many common skin conditions, including ringworm, athlete's foot and yeast infections. As a fungus-fighter, honey appears to be comparable to many over-the-counter antifungal preparations. Scientists recently found that psoriasis sufferers may benefit from applications of a mixture of honey, beeswax and olive oil. In a study of people suffering from psoriasis and other inflammatory skin disorders, 60 percent showed significant improvement when treated with the honey-based mixture.

17. The word "ailments" in line 4 is closest in meaning to

a. weaknesses

b. sicknesses

c. fevers

d. processes

18. Which of the following goes best in blank 18?

a. those especially that fail to become properly infected or heal

b. properly become to heal or especially those infected that fail

c. especially those that become infected or fail to heal properly

d. infected properly or that fail to heal become especially those

19. The word "sterilizing" in line 14 is closest in meaning to

a. cleaning

b. opening

c. parting

d. changing

20. The word "potent" in line 16 is closest in meaning to

a. weak

b. vicious

c. possible

d. powerful

21. The word "concentration" in line 19 probably means

a. the process of becoming stronger.

b. the ability to absorb a material.

c. the amount of a substance in another substance.

d. the level of quality of something contained in a liquid.

22. The word "contamination" in line 25 probably means

a. entry of a polluting substance.

b. blocking of a desired substance.

c. removal of an undesired element from a wound or injury.

d. making something pure by blocking polluting substances.

23. Which of the following goes best in blank 23?

a. Honey makes each of these wound properties an excellent healing dressing.

b. Wound honey dressing makes each of these properties an excellent healing.

c. Dressing an excellent honey wound makes each of these properties healing.

d. Each of these healing properties makes honey an excellent wound dressing.

24. The word "conventional" in line 29 is closest in meaning to

a. correct

b. beneficial

c. simple

d. standard

25. The word "promote" in line 32 is closest in meaning to

a. stimulate

b. upgrade

c. prefer

d. advertise

26. According to the text, why did people stop using honey as a medicine?

a. Honey was not as effective as modern medicines.

b. Honey became less popular than modern drugs.

c. Honey was no longer widely available after the 1940s.

d. Honey became too expensive to use as medicine.

27. According to the text, how does honey help to prevent infection?

a. Honey possesses an ingredient that kills bacteria.

b. Honey helps to reduce the effects of hydrogen peroxide.

c. Honey has inflammatory properties that combat invading organisms.

d. Honey reduces the rate of amputations from diabetes.

28. According to the text, why is honey useful against antibiotic-resistant superbugs?

a. Because it is less expensive than other medicinal products.

b. Because it works well in inhospitable environments.

c. Because it has numerous ways that it fights bacteria.

d. Because it has ingredients that speed inflammation.

29. According to the text, why is honey useful in treating burn victims?

a. Because honey contains the burn medication silver sulfadiazine.

b. Because honey is a more superficial covering than other burn medications.

c. Because honey reduces burns from moderate to mild.

d. Because honey decreases both scarring and pain compared to regular burn treatments.

30. According to the text, honey's antifungal properties

a. are not effective against yeast infections.

b. are as good as most over-the-counter medications.

c. contribute to athlete's foot.

d. provide a 60% improvement in most skin conditions.

3 次の英文を読み，31.～40.の下線部に入る最も適切なものを，それぞれa.～d.の中から一つ選べ。

Forget about senior moments. The great news is that researchers are discovering some surprising advantages of aging. (31)_____ certain mental skills decline with age — what was that guy's name again? — scientists are finding the mind gets sharper at a number of vitally important abilities. In a University of Illinois study, older air traffic controllers excelled at their cognitively taxing jobs, (32)_____ some losses in short-term memory and visual spatial processing. How so? They were expert at navigating, juggling multiple aircraft simultaneously and avoiding collisions.

People also learn how to (33)_____ social conflicts more effectively. For a 2010 study, researchers at the University of Michigan presented "Dear Abby" letters to 200 people and asked what advice they would give. Subjects in their 60s were better than younger ones at imagining different points of view, thinking of multiple resolutions and suggesting compromises.

It turns out that managing emotions is a skill in itself, (34)_____ that takes many of us decades to master. For a study published this year, German researchers had people (35)_____ a gambling game meant to induce regret. Unlike 20-somethings, those in their 60s didn't agonize over losing, and they were less likely to try to redeem their loss by later taking big risks.

These social skills may bring huge benefits. In 2010, researchers at Stony Brook University analyzed a telephone survey of hundreds of thousands of Americans and found that people over 50 were happier overall, (36)_____ anger declining steadily from the 20s through the 70s and stress falling off a cliff in the 50s.

This may be news to people who equate being old with being sad and alone, but it fits with a body of work by Laura Carstensen, a psychologist at Stanford. She led a study that (37)_____ people ages 18 to 94 for a decade and

found that they got happier and their emotions bounced around less. Such studies reveal that negative emotions (38)_____ sadness, anger and fear become less pronounced than in our drama-filled younger years.

Cornell sociologist Karl Pillemer and co-workers interviewed about 1, 200 older people for the book *30 Lessons for Living: Tried and True Advice from the Wisest Americans*. "Many people said something along these lines: '(39)_____ I'd learned to enjoy life on a daily basis and enjoy the moment when I was in my 30s instead of my 60s,'" he says. Elderly interviewees are likely to "(40)_____ the last five or ten years as the happiest years of their lives."

"We have a seriously negative stereotype of the 70s and beyond," says Pillemer, "and that stereotype is typically incorrect."

31. a. Even as　　b. In case
　　c. Because　　d. As far as

32. a. though　　b. despite
　　c. so that　　d. considering

33. a. deal with　　b. come up with
　　c. lead to　　d. come into

34. a. such　　b. those
　　c. any　　d. one

35. a. to play　　b. play
　　c. for playing　　d. played

36. a. in that　　b. coming to
　　c. with　　d. instead of

37. a. followed　　b. following
　　c. preceded　　d. preceding

38. a. compared with　　b. in addition to
　　c. along with　　d. such as

39. a. Supposing　　b. Unfortunately
　　c. I wish　　d. I'm afraid

40. a. ascribe　　b. describe
　　c. prescribe　　d. transcribe

4 次の英文を読み，設問 41. ～50. に最も適する答えを，a. ～d. の中から一つ選べ。

A new study by archaeologists at the University of York challenges evolutionary theories behind the development of our earliest ancestors from tree dwelling quadrupeds to upright bipeds (41)_____ walking and scrambling. The researchers say our upright gait may have its origins in the rugged landscape of East and South Africa, which was shaped during the Pliocene epoch [from 13 million to 2 million years ago] by volcanoes and shifting tectonic plates.

Hominins, our early forebears, would have been attracted to the terrain of rocky outcrops and gorges because it offered shelter and opportunities to trap prey. But it also required more upright scrambling and climbing gaits, (42)_____ the emergence of bipedalism.

The York research challenges traditional hypotheses, which suggest our early forebears were forced out of the trees and onto two feet when climate change reduced tree cover. The study, 'Complex Topography and Human Evolution: the Missing Link', was developed in (43)_____ with researchers from the Institut de Physique du Globe in Paris. It is published in the journal *Antiquity*.

Dr Isabelle Winder, from the Department of Archaeology at York and one of the paper's authors, said: "Our research shows that bipedalism may have developed as a response to the terrain, rather than a response to climatically-driven vegetation changes.

"The broken, disrupted terrain offered benefits for hominins in terms of security and food, but it also proved (44)_____ to improve their locomotor skills by climbing, balancing, scrambling and moving swiftly over broken ground — types of movement encouraging a more upright gait."

The research suggests that the hands and arms of upright hominins were

then left free to develop increased manual dexterity and tool use, supporting a further key stage in the evolutionary story.

The development of running adaptations to the skeleton and foot may have resulted from later excursions onto the surrounding flat plains in search of prey and new home ranges.

Dr Winder said: "The varied terrain may also have contributed to improved cognitive skills such as navigation and communication abilities, accounting for the continued evolution of our brains and social functions such as co-operation and team work.

"Our hypothesis offers a new, (45)_____ alternative to traditional vegetation or climate change hypotheses. It explains all the key processes in hominin evolution and offers a more convincing scenario than traditional hypotheses."

41. Which words are the best for blank 41?

a. content to

b. waiting until

c. practicing for

d. capable of

42. Which word is the best for blank 42?

a. prompting

b. grounding

c. declaring

d. dividing

43. Which word is the best for blank 43?

a. presence

b. conjunction

c. person

d. contrast

44. Which words are the best for blank 44?

a. a fact

b. an outlet

c. a motivation

d. a distribution

45. Which word is the best for blank 45?

a. considerable

b. certain

c. somewhat

d. viable

46. According to the text, the study at the University of York

a. showed how tectonic plates were shaped by volcanoes.

b. proved that our early ancestors moved to East Africa.

c. presented a new theory about early human evolution.

d. all of the above.

47. According to the text, why might our early ancestors have wanted to move to areas of rocky terrain?

a. They could move more swiftly over rocks than in trees.

b. Rocky terrain was better for catching food and finding cover.

c. Rocky terrain was more suited to their upright gait.

d. They would have had more opportunities to scramble and climb in rocky areas.

48. According to the text, what is the traditional hypothesis about why our early ancestors moved out of the trees?

a. Walking on two feet made living in trees inconvenient.

b. Trees made it too difficult to find cover.

c. Moving out of trees gave our ancestors more motivation to evolve.

d. A change in climate reduced the number of trees.

49. According to the text, the new research suggests that walking on two feet

a. developed as a response to moving to rocky terrain.

b. caused major changes to the vegetation in the region.

c. was necessary to respond to climate changes.

d. was not an advantage after moving to rocky terrain.

50. According to the text, what was probably NOT an evolutionary result of moving to rocky terrain?

a. increased manual skill and tool use

b. improved cognitive skills such as navigation and communication

c. running adaptations to the foot

d. improved locomotor skills such as climbing and balancing

5 次の英文を読み，51.～55.の下線部に入る最も適切なものを，a.～d.の中から一つ選べ。

Dog owners have often claimed they can read the expressions of their pets — particularly that tell-tale look when they have done something wrong. But researchers at a New York college tricked owners into thinking (51)_____ pets had misbehaved — with the owners still claiming to see this guilty look. The study found that the expression had no relation to the dogs' behaviour. And researchers found that pet owners' belief that they could read their dogs' "body language" was often entirely (52)_____.

The study from Alexandra Horowitz, assistant professor at Barnard College in New York, showed that owners were projecting human values onto their pets. The research, Canine Behaviour and Cognition, looked at how dog owners interpreted their pets' expressions, when they believed that the dog had stolen and eaten a (53)_____ treat. In a series of tests, owners were sometimes given accurate and sometimes false information about whether their dog had stolen the treat.

But the research, published in Behavioural Processes, found that owners' interpretations of whether their dog looked guilty bore no (54)_____ link with whether the dog had really stolen the treat. When the owners had been told their dog had misbehaved, they saw this guilty expression, even when the dog had not really done anything wrong. Where there was any change in the dogs' expression, it was seen to be a subsequent reflection of the human's emotions. If an owner thought the dog had misbehaved and then told the dog off, some dogs showed an "admonished" look, which humans then misunderstood as (55)_____ of guilt. The dogs which were most likely to "look guilty", according to their owners, were those who were entirely innocent and had then been told off by owners who believed that they had stolen treats.

Researchers concluded that any such "guilty look" is a response to human

behaviour and has no relation with the dog's actions or sense of having broken any rules.

51. a. uninterested　　b. absent
　　c. naive　　d. innocent

52. a. unfounded　　b. untimely
　　c. unwilling　　d. unconscious

53. a. forbidden　　b. dead
　　c. personable　　d. naughty

54. a. problematic　　b. severe
　　c. reliable　　d. sincere

55. a. a permission　　b. an admission
　　c. a denial　　d. a commitment

解答

6

設問 56. ～60. について，下線部の発音が他の三つと異なるものを，a．～d．の中から一つ選べ。

56. a．instead　b．breast　c．creature　d．jealous

57. a．swollen　b．follow　c．social　d．notice

58. a．nerve　b．thirsty　c．worm　d．arm

59. a．thumb　b．limb　c．climber　d．chamber

60. a．ankle　b．patient　c．behave　d．waste

設問 61. ～65. について，最も強く発音される部分の位置が他の三つと異なるものを，a．～d．の中から一つ選べ。

61. a．oc･cur　b．de･stroy
　　c．com･pete　d．pat･tern

62. a．med･i･cine　b．ex･am･ine
　　c．al･co･hol　d．car･ri･er

63. a．in･fant　b．sur･geon
　　c．se･vere　d．in･stinct

64. a．in･de･pend･ent　b．par･tic･i･pate
　　c．im･me･di･ate　d．tech･nol･o･gy

65. a．in･fect　b．im･prove
　　c．sur･face　d．re･fer