

英 語

東北医科薬科大学医学部 2025 年度型 そっくり類題セット

※ これは東北医科薬科大学の入試問題ではありません。
2025 年度の出題形式（大問の数・設問の構成・解答形式）をもとに、
TMPS 医学館が題材や設問を変えて作成したオリジナル問題です。
本文中の人物・大学・研究機関はすべて架空です。

試験時間の目安：70 分（本番と同じ）

大問	ページ	時間配分の目安
【I】（長文：ソフトロボット）	2	22 分
【II】（長文：笑いの科学）	5	22 分
【III】（誤り指摘）	8	8 分
【IV】（並べ替え）	9	10 分（見直し 8 分）

注意事項

- 問題は【I】～【IV】の全 4 題、解答欄は ～ 。すべて「選んで番号をマークする」形式。
- 【I】【II】は、各設問で最も適切なものを①～④から一つ選ぶ。【III】は下線部①～④のうち誤りを含むものを一つ選ぶ。【IV】は語句を並べ替え、指定された位置に入る語句の番号を選ぶ。
- 解答・解説は、解説ページ（TMPS 医学館の過去問解説図書館）に掲載している。

[I]

次の英文を読み、問1～15の設問の解答として、もしくは設問中の空欄に入るものとして最も適切なものを選択肢①～④から一つ選び、その番号をマークせよ。なお、[1]～[8]はパラグラフ（段落）の番号を表している。

[1] Ingrid Halvorsen builds robots. That's not unusual for an engineer. But instead of stiff metal arms, she makes soft ones that bend like an octopus's tentacle. She leads a research group that works on "soft machines" at the Linden Institute in Bergen, Norway. Hard robots are already common in our world. They carry out many tasks in industry. Many lift car doors. Some tighten bolts on assembly lines. Others carry boxes across warehouses or help surgeons cut with great precision. But a hard robot can hurt whatever it touches.

[2] That's a problem when robots work around people. A stiff arm can bruise a person who stands too close. It can also crush a fragile object, such as an egg or a ripe peach. That's why engineers are looking at how soft machines might take over delicate jobs. They might pick fruit without damaging it. Or they might wrap gently around an injured organ during surgery. And the potential goes beyond easier jobs. Some researchers hope that, by combining enough soft parts, they could build machines that explore places no human can reach.

[3] When a machine breaks — say, part of a car's engine — we replace it with a stronger one. So if a robot arm is too hard, why not just build it from rubber? Back when Tomas Reyes was a student, he asked his teachers just that. Now a roboticist at Marlow College in Bristol, England, Reyes has answered his own question. "Turns out," he says, we are "not very good at copying how muscles work." Making a soft arm is difficult — and for several reasons. First, soft materials stretch unevenly, so an arm may bend in an unexpected direction. Second, the air that moves the arm must be pumped through tiny channels in exactly the right order. Another problem: soft materials wear out. Repeated bending causes small cracks, and the cracks grow. That makes soft robots tricky and costly to maintain.

[4] Engineers like Reyes and Halvorsen found a workaround. They're building robots that borrow tricks from animals. With the right design, these robots can move more easily and at lower cost. They also can last longer — and need fewer parts. To build them, researchers can work with many kinds of materials. Some use silicone, like that in kitchen tools. Reyes uses fabric woven with tiny air tubes. Halvorsen and a few others even use gels that swell when heated.

[5] (①) Such engineers are part of a field known as soft robotics. That's the study of machines made from bendable materials. (②) Pedro Alves is a soft roboticist at Westbrook University in Ohio. In a 2022 interview, he described a bold goal: Rather than send hard-shelled robots into collapsed buildings, he'd send soft ones that squeeze through gaps. Picture a machine that could flatten itself like a pancake, he said. (③) Maybe it slips beneath a heavy beam to reach a trapped hiker. Or maybe it crawls through a pipe to check for leaks. (④)

[6] "Say you want a robot that climbs a wall like a gecko," Alves said in the interview. "If we really understood how that animal sticks to surfaces," soft roboticists could design one. Such technology is already underway, he said, with the goal of helping rescue crews, assisting older adults and more. "It would work almost anywhere except underwater." It's a distant goal, he admitted — in fact, one he may not see completed. But he believes later teams will: "I think it's achievable."

[7] A fully soft robot that can rival a human nurse appears to be out of reach. Engineers have, however, learned to make small soft fixes. Robots and their sensors must work together. Think of them like "the crew of a ship," Reyes says. Turn the wheel, and the ship changes course. That's a big-scale effect. But each small crew member must do the job properly to get that result. Soft machines are similar. Their many small parts must work as teams.

[8] Here's one example. An octopus arm contains a soft muscle that runs along its whole length.

When the animal wants to grab a shell, nerves send a signal along the arm, and the muscle tightens in a wave. That wave pushes the tip forward and wraps it around the shell. Copying that wave is like knocking over a line of dominoes. If one domino fails, the chain stops. Similarly, if the signal is lost, the arm cannot grip. But soft robotics, Halvorsen says, can replace a faulty section or re-route the signal. It might even tackle the problem of robot hands that drop things. They slip when their sensing skin cannot detect pressure properly.

問1 According to paragraph [1], Ingrid Halvorsen ([1]).

- ① repairs metal arms for factories
- ② builds a robot shaped like an octopus
- ③ makes bendable robots that move like tentacles
- ④ studies how hard robots hurt people

問2 According to paragraph [1], which of the following is NOT mentioned as a job of hard robots?

[2]

- ① Lifting car doors.
- ② Tightening bolts.
- ③ Carrying boxes in warehouses.
- ④ Sorting letters at post offices.

問3 According to paragraph [2], what makes hard robots a problem around people? [3]

- ① They move too slowly in crowded rooms.
- ② They can injure people or crush fragile things.
- ③ They use too much electricity.
- ④ They cannot lift light objects.

問4 The following is a summary of paragraph [2]. The blanks (1), (2), (3) and (4) each match one of the options ①, ②, ③ or ④. Each option is only used once. Which option fits into blank (3)? [4]

Engineers are exploring ways to (1) hard robots with softer ones, because soft machines can (2) fragile objects without damage. Researchers are investigating the potential to (3) soft machines in surgery and fruit picking. Ultimately, they may be able to (4) robots into places that no human can reach.

- ① handle ② replace ③ use ④ send

問5 The phrase “wrap gently around” in paragraph [2] is closest in meaning to ([5]).

- ① cut carefully
- ② surround carefully
- ③ push hard against
- ④ lift up

問6 According to paragraph [3], what did Tomas Reyes think of rubber when he was a student?

[6]

- ① Rubber was too weak to move anything.
- ② A robot made of rubber could be a solution.
- ③ Rubber was cheaper than fixing an engine.
- ④ A rubber arm was like a damaged car part.

問7 According to paragraph [3], what did Reyes realize as a roboticist? [7]

- ① It is impossible to make soft arms with modern air pumps.
- ② We need more powerful engines to copy muscles.
- ③ Copied muscles work surprisingly well.
- ④ We are not skilled at copying how muscles work.

問8 According to paragraph [3], to make a soft arm bend correctly, the air must ().

- ① be pumped through the channels in the right order
- ② stay inside the arm at all times
- ③ cool the rubber quickly
- ④ stretch the material evenly

問9 In paragraph [4], which of the following is NOT mentioned about the robots that engineers like Reyes and Halvorsen are building?

- ① They borrow tricks from animals.
- ② They can move easily at lower cost.
- ③ They last longer than earlier models.
- ④ They run only on batteries that are easy to recharge.

問10 Where would the following sentence best fit in paragraph [5]? Choose (①), (②), (③) or (④).

These are only two of many possible jobs.

問11 According to paragraph [6], the technology that could create “a robot that climbs a wall like a gecko” ().

- ① tells rescue crews how to build robots
- ② will be completed during Alves’s career
- ③ could potentially work almost anywhere except underwater
- ④ is something Alves hopes never to see

問12 The phrase “out of reach” in paragraph [7] is closest in meaning to ().

- ① just around the corner
- ② too heavy to lift
- ③ already finished
- ④ not yet possible

問13 According to paragraph [7], what kind of cooperation does Reyes say is needed?

- ① Engineers and nurses.
- ② Ships and crews.
- ③ Robots and their sensors.
- ④ Wheels and engines.

問14 According to paragraph [8], if you arrange ①, ②, ③, and ④ in the order that shows how an octopus arm grabs something, which one would be the third?

- ① The tip wraps around the object.
- ② The muscle tightens in a wave.
- ③ A signal travels along the arm.
- ④ The animal wants to grab something.

問15 According to paragraph [8], what is the cause of robot hands dropping things?

- ① Failure to detect pressure with the sensing skin.
- ② Broken rubber in the fingers.
- ③ A shortage of air in the arm.
- ④ A faulty switch in the muscle.

【II】

次の英文を読み、問1～15の設問の解答として、もしくは設問中の空欄に入るものとして最も適切なものを選択肢①～④から一つ選び、その番号をマークせよ。なお、[1]～[9]はパラグラフ（段落）の番号を表している。

[1] Laughter seems to be everywhere — even when we’re alone with a funny thought. It’s part of every culture around the world. Laughter brings people together, signals friendliness and sometimes hides embarrassment. But why? Researchers are investigating what laughter does for us and why — whether it’s easing tension, building trust or tricking us into feeling better. They’re also studying the ways laughter spreads between people. They’re even looking at how our brains react to a joke. And some are finding ways to use laughter to help patients.

[2] Some people laugh at almost anything. Others hold back until a joke is truly funny. People often say that a good laugh is “contagious.” When a giggle passes from one person to the next, we say it has caught on. Those words might be more accurate than we ever imagined, find researchers at Redfield University in Dunedin, New Zealand.

[3] Hana Lindgren is a sound researcher. One day, she was chatting with comedian and engineer Sam Okafor. Okafor had recordings of 2.1 million audience laughs from 41 theaters. “It was from the period when theaters first began recording their shows,” Lindgren explains. Some ten years ago, this was before most comedians had started putting clips online. Okafor knew which shows had been recorded. He also knew when they’d been recorded and in which city the audience was sitting at the time.

[4] And she found curious clusters of laughs. Some jokes had drawn big laughs on just a few evenings over a few weeks. Those patterns looked familiar to Lindgren. She studies how habits spread. And those laugh data resembled the kind of data she saw with gossip. “We wondered whether that kind of spread from person to person could be how audiences decide that a joke is funny,” Lindgren recalls.

[5] Graduate student Marco Pellegrini joined the project. He had been working with a mathematical model. He used it to predict how rumors travel through a town. The model compared three groups of people over time. One hadn’t heard the rumor yet. A second group was currently passing it along. A third group was people who had passed it on but stopped. As a rumor develops, people move from being unaware into the passing group, then the stopped one. It’s such a consistent pattern, it can be described with math.

[6] The team now used the same model with the laugh data. (①) They looked at the 500 most recorded comedy shows in Canada, dividing them by style. (②) For popular shows, laughs rose rapidly from night to night, much like a rumor passing through a crowd. (③) Slapstick and dry wit did not behave in the same way. (④) “The people who enjoy dry humor aren’t the same as the people who like slapstick. They’re different audiences,” Lindgren says. “And some of those audiences are much more likely to share things quickly.”

[7] Surprisingly, slapstick wasn’t the most contagious. It spread, but not as quickly as some other styles. Wordplay, on the other hand, was super contagious. Lindgren has a hypothesis about why. Those fans “are probably super connected online and swapping clips” more than people who prefer other kinds of comedy. “We think of gossip as strictly negative,” Lindgren says. That’s especially true in small towns. “But that same process of spreading works for other things in life,” she now concludes. Like sharing a favorite joke with your closest friends.

[8] Sometimes you hear a joke and just know it’s going to be a classic. Maybe you burst out laughing. Or you might feel a warm rush of joy. That’s why you want to hear it again — and why you’re likely to tell it to others. What causes such strong responses? That’s a question neuroscientist Elena Vogt has been studying. She works at Halden University in Oslo. People who take part in her research watch comedy clips as they lie in an fMRI scanner. All the

while, the machine scans their brain. Vogt also asks the participants how funny they find each clip. Those scans hint that brain activity changes in response to humor.

[9] Specific parts of the brain respond together to humor, her studies reveal. “The brain is always active,” Vogt says. And there isn’t a single “humor spot.” But several networks, or linked groups of brain regions, become more active. Such networks are made up of “regions in the brain that tend to switch on together and in sync,” she explains. Some of these ramp up activity when jokes are told. And they’re involved in lots of different things. The *limbic network processes emotions. The language network lets us understand wordplay. The motor network moves our smile. And the auditory network, of course, responds to sounds.

*limbic 大脳辺縁系の

問1 In paragraph [1], which of the following is NOT mentioned as a potential effect of laughter?

16

- ① It builds trust.
- ② It eases tension.
- ③ It helps people sleep longer.
- ④ It signals friendliness.

問2 In paragraph [1], which of the following is NOT mentioned as a focus of researchers? 17

- ① Why comedians choose certain words.
- ② How laughter spreads between people.
- ③ How the brain reacts to a joke.
- ④ Whether laughter can help patients.

問3 According to paragraph [2], when people say laughter is “contagious,” they mean that it (18).

- ① is very attractive to children
- ② is always planned by comedians
- ③ is so quiet that we barely hear it
- ④ passes from person to person easily

問4 The phrase “caught on” in paragraph [2] is closest in meaning to (19).

- ① spread among people
- ② made us sad
- ③ become quiet
- ④ stopped suddenly

問5 According to paragraph [3], Sam Okafor (20).

- ① recorded 2.1 million laughs himself
- ② knew when, where, and at which shows the laughs were recorded
- ③ worked at a theater in Dunedin
- ④ knew when comedians began putting clips online

問6 According to paragraph [4], “clusters of laughs” were curious because (21).

- ① Lindgren was familiar with those comedians
- ② the laughs were recorded within a month
- ③ they occurred in the same cities where rumors spread
- ④ the laugh pattern resembled how habits and gossip spread

問7 According to paragraph [5], which of the following is TRUE of Marco Pellegrini? 22

- ① He took over the project from Lindgren.
- ② He applied Okafor’s recordings to his model.

- ③ He used his model to predict how rumors travel.
- ④ He applied his model to people with three types of rumors.

問8 According to paragraph [5], what is the primary focus of Marco Pellegrini's work? 23

- ① Studying how people forget rumors.
- ② Analyzing the spread of rumors through a town.
- ③ Developing a model of how people move to new towns.
- ④ Making sure rumors spread consistently.

問9 According to paragraph [6], the pattern of laughs differs depending on (24).

- ① the style of comedy
- ② the rumor model
- ③ the size of the theater
- ④ the time of the performance

問10 Where would the following sentence best fit in paragraph [6]? Choose (①), (②), (③) or (④). 25

These data, too, fit the rumor model.

問11 In paragraph [7], Lindgren suggests that wordplay spread more quickly than slapstick because those fans (26).

- ① have negative attitudes toward comedy
- ② were more influenced by small towns
- ③ have not shared clips with other groups
- ④ are more closely linked to each other

問12 The phrase “burst out laughing” in paragraph [8] is closest in meaning to “(27).”

- ① suddenly start laughing
- ② slowly stop smiling
- ③ quietly smile
- ④ barely react

問13 According to paragraph [8], Elena Vogt found that (28).

- ① brain activity changes according to the participants' ages
- ② brain activity is influenced by the humor being enjoyed
- ③ the brain quickly responds to the first part of a joke
- ④ the brain uses its own system for humor

問14 Regarding Vogt's studies, which of the following is NOT mentioned in paragraph [8]? 29

- ① Participants were positioned in an fMRI scanner.
- ② Participants had their brain activity continuously monitored.
- ③ Participants were asked how funny they found each clip.
- ④ Participants received a prize for each laugh.

問15 According to paragraph [9], Vogt found that (30).

- ① one single region of the brain responds to humor
- ② every part of the brain responds to humor in the same way
- ③ smiling typically happens while a joke is told
- ④ humor activates multiple linked networks in the brain

【III】

次の問1～10に示された英文は”Habits”と題する一続きの文章の冒頭である。各問いにおいて、下線を付した語句①～④のうち、文法・語法上または文脈上の誤りを含むものを一つ選び、その番号をマークせよ。

問1 31

Procrastination is ①defined as ②the act of delaying a task ③in spite we know ④it will cause trouble.

問2 32

Many students believe ①that they work ②best under pressure, ③which ④make it hard to start early.

問3 33

Psychologists have found that people ①are ②more likely to delay a task ③when it seems ④boringly.

問4 34

①Instead of ②to make a long to-do list, it is often better to ③begin with ④one small step.

問5 35

If you ①will start preparing a week early, you ②are ③far ④less likely to panic.

問6 36

The more we think of a task as a huge mountain, ①the harder it ②becomes ③for ④starting.

問7 37

①Each of the ②students ③were asked to keep ④a diary of their habits.

問8 38

This method is ①much ②effective ③than ④the old one.

問9 39

①Despite ②of his best efforts, ③he ④missed the deadline.

問10 40

A habit is ①something ②whom ③people ④repeat without thinking.

【IV】

次の問1～5の和文の意味に合うように [] 内の語句を並べ替えて英文を作り、空欄 (41) ～ (50) に入るものを一つ選び、その番号をマークせよ。なお、文頭にくる語句も小文字で記されている。

問1 この薬は、どのような点で他の薬と違うのですか。

() () () **41** () () **42** () others?

[① this ② from ③ is ④ ways ⑤ what ⑥ medicine ⑦ in ⑧ different]

問2 これは、睡眠不足に関連するすべての要因が調べられた最初の研究である。

This is the first study () **43** () () **44** () () () have been examined.

[① sleep ② in ③ which ④ to ⑤ related ⑥ factors ⑦ loss ⑧ all]

問3 近年の患者数の増加は、食生活の変化、すなわち砂糖の摂取量の増加によるものと考えられている。

The recent increase in patients is thought () () **45** () () () diet, **46** () () in sugar intake.

[① to ② be ③ caused ④ by ⑤ changes ⑥ in ⑦ namely ⑧ a ⑨ rise]

問4 私は知らなかったが、私たちのチームには経験と信頼が依然として欠けていた。

Little () **47** (), () () () () **48** () in our team.

[① still ② trust ③ I ④ experience ⑤ and ⑥ did ⑦ were ⑧ know ⑨ lacking]

問5 強いプレッシャーを受けると体はアドレナリンを出し、それが筋肉を緊張させるため、緊張した話し手の手が震えるのも不思議ではない。

Since under heavy pressure the body releases adrenaline, () () **49**, () () **50** () () speakers also have trembling hands.

[① tightens ② that ③ the muscles ④ which ⑤ nervous ⑥ wonder ⑦ it's ⑧ no]

終