

# 理解力評価テスト問題集

令和7年度

## ■推薦試験 B（公募）

数学	1
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# 数学 問題

注意：問題（１）から（４）の解答は [数学]の「１」の解答マーク欄を使用してください。

問題

(1)  $(3\sqrt{6} + 4\sqrt{3} + \sqrt{2})(3\sqrt{6} - 4\sqrt{3} - \sqrt{2}) = \boxed{\text{ア}} - \boxed{\text{イ}}\sqrt{\boxed{\text{ウ}}}$  である。

(2) 循環小数  $0.\dot{1}\dot{8}$  を既約分数で表すと  $\frac{\boxed{\text{エ}}}{\boxed{\text{オカ}}}$  であり、

$0.\dot{1}\dot{8} - 0.\dot{1}0\dot{8} = \frac{\boxed{\text{キク}}}{\boxed{\text{ケコサ}}}$  である。

(3) 連立不等式  $\begin{cases} |2x - 3| < 5 \\ 2x^2 - 5x > -3 \end{cases}$  の解は

$\boxed{\text{シス}} < x < \boxed{\text{セ}}, \frac{\boxed{\text{ソ}}}{\boxed{\text{タ}}} < x < \boxed{\text{チ}}$  である。

(4)  $\triangle ABC$  について、 $AB = 3$ ,  $BC = 5$ ,  $CA = 6$  であるとき、

$\cos \angle CAB = \frac{\boxed{\text{ツ}}}{\boxed{\text{テ}}}$  であり、 $\triangle ABC$  の面積は  $\boxed{\text{ト}}\sqrt{\boxed{\text{ナニ}}}$  である。

( [数学]の「１」の解答マーク欄で使用する欄は ニ までです。 )

注意：問題（５）から（８）の解答は [数学] の「２」の解答マーク欄を使用してください。

(5)  $a, b$  は  $0 \leq a \leq b$  を満たす整数とする. 8 人の生徒に対し数学の小テストを実施したところ, 得点が 9, 8, 9, 4, 3, 5,  $a, b$  となった. この小テストの平均が 6, 分散が 7 であるとき,  $a = \boxed{\text{ア}}$ ,  $b = \boxed{\text{イ}}$  である.

(6) 平面上に 7 本の直線があり, どの 2 本も平行ではなく, どの 3 本も 1 点で交わらないとする. このとき, これらの直線によってできる交点は全部で  $\boxed{\text{ウエ}}$  個あり, これらの直線によってできる三角形は全部で  $\boxed{\text{オカ}}$  個ある.

(7)  $a$  を定数とする. 関数  $f(x) = -x^2 + 6ax - 4$  ( $0 \leq x \leq 1$ ) の最大値を求める. 関数  $f(x)$  は,

$a < \boxed{\text{キ}}$  のとき,  $x = \boxed{\text{ク}}$  で最大値  $\boxed{\text{ケコ}}$ ,

$\boxed{\text{キ}} \leq a < \frac{1}{\boxed{\text{サ}}}$  のとき,  $x = \boxed{\text{シ}}a$  で最大値  $\boxed{\text{ス}}a^2 - \boxed{\text{セ}}$ ,

$\frac{1}{\boxed{\text{サ}}} \leq a$  のとき,  $x = \boxed{\text{ソ}}$  で最大値  $\boxed{\text{タ}}a - \boxed{\text{チ}}$

をとる.

(8) 4 個の白球と 6 個の赤球の入った袋から, 球を 1 個ずつ 2 回取り出す. ただし, 取り出した球は袋に戻さないものとする. 1 回目も 2 回目も赤球である確率は  $\frac{\boxed{\text{ツ}}}{\boxed{\text{テ}}}$  である. また, 2 回目に取り出した球が赤球であったとき, 1 回目に取り出した球も赤球である確率は  $\frac{\boxed{\text{ト}}}{\boxed{\text{ナ}}}$  である.

( [数学] の「２」の解答マーク欄で使用する欄は ナ までです. )

(以上, 問題終了)

## 外国語(英語) 問題

I. 次の(ア)～(オ)の下線の部分に入れる語句として、最も適切なものを選択肢から一つ選びなさい。

(ア) We \_\_\_\_\_ not certain if we can make it to dinner on time.

1. am
2. are
3. is
4. was

(イ) This problem is \_\_\_\_\_ the one we solved at last year's competition.

1. difficult as
2. less difficult as
3. more difficult than
4. the most difficult of

(ウ) There is a clear difference \_\_\_\_\_ these two teams.

1. between
2. both
3. compare
4. together

(エ) I apologized \_\_\_\_\_ coming to the meeting late.

1. at
2. for
3. of
4. to

(オ) Matt didn't tell us \_\_\_\_\_ he was going to the party.

1. that
2. what
3. which
4. with

(カ) Would you mind \_\_\_\_\_ the window?

1. open
2. opened
3. opening
4. opens

(キ) There has been a long \_\_\_\_\_ in the construction of the new city hall.

1. after
2. delay
3. late
4. slow

(ク) \_\_\_\_\_ it was raining heavily, they decided to go for a walk.

1. Although
2. Moreover
3. Nevertheless
4. Unlike

(ケ) Risa has more homework than \_\_\_\_\_ do.

1. I
2. me
3. mine
4. my

(コ) Greg doesn't have \_\_\_\_\_ money, so he can't buy a ticket for the concert.

1. few
2. many
3. much
4. no

Ⅱ. A 次の(ア)～(オ)の下線部の単語の文中での意味に最も近いものを選択肢から一つ選びなさい。

(ア) Time management is crucial to maintaining productivity.

1. careful
2. necessary
3. quick
4. short

(イ) Tim's knowledge of biology was insufficient to pass the exam.

1. enough
2. lacking
3. lost
4. wasted

(ウ) Green spaces in cities enhance the quality of life.

1. cost
2. divide
3. improve
4. ruin

(エ) The intense exercise program pushed Carlos to his limits.

1. extreme
2. long
3. main
4. planned

(オ) Despite the team's effort, their proposal was not successful.

1. choice
2. defeat
3. hard work
4. high price

II. B 次の(カ)～(コ)の下線部の単語の文中での意味と反対の意味を表すものを選択肢から一つ選びなさい。

(カ) My sister and I went to different high schools.

1. crowded
2. diverse
3. large
4. same

(キ) The cup is very delicate, so please be careful when you use it.

1. durable
2. fine
3. fragile
4. sensitive

(ク) Traffic on this road is restricted from 7:30 AM to 9:30 AM.

1. expanded
2. hurt
3. required
4. solved

(ケ) We will skip the first three items on today's meeting agenda.

1. avoid
2. delete
3. focus on
4. take out

(コ) She had an impressive collection of rare coins.

1. beautiful
2. ordinary
3. satisfying
4. valuable

Ⅲ. A 次の(ア)～(オ)に入れる文として、最も適切なものを選択肢から選びなさい。選択肢は、一回しか使えません。

A: Dad, can I go snowboarding with my friends this weekend?

B: Snowboarding? I'm not sure, Beth. ( \_\_\_\_\_ ア \_\_\_\_\_ )

A: But my friends are going, and they say it's really safe.

B: Maybe, but snowboarding still has its risks. Plus, you've never tried it before.

A: I promise I'll be careful! ( \_\_\_\_\_ イ \_\_\_\_\_ )

B: It's not just about what you wear. You need to know how to stay in control on the slopes. It's easy to get hurt.

A: My friends' parents will be there, and they're really good at snowboarding.  
( \_\_\_\_\_ ウ \_\_\_\_\_ )

B: That's good to know, but I'd feel better if you had some lessons first. Maybe we could go together a few times before you go with your friends.

A: But they're going this weekend! I don't want to miss it.

B: I understand, but your safety comes first. ( \_\_\_\_\_ エ \_\_\_\_\_ )

A: You'd come with me? We'll have so much fun!

B: Exactly! We'll get to spend time together, and I'll know you're safe.  
( \_\_\_\_\_ オ \_\_\_\_\_ )

A: That sounds great! Thanks, Dad.

[選択肢]

1. Didn't we go together last time?
2. How does that sound?
3. I'll wear a helmet and goggles for protection.
4. It can be very dangerous.
5. Just because they are going doesn't mean you have to.
6. They'll keep an eye on us.
7. What if I came with you this weekend?
8. Your snowboard was really expensive.

Ⅲ. B 次の(カ)～(コ)に入れる文として、最も適切なものを選択肢から選びなさい。選択肢は、一回しか使えません。

A: Hi there. ( \_\_\_\_\_ カ \_\_\_\_\_ ) It's making a strange noise when I change gears.

B: Let me have a look. Hmm . . . Oh, I see the problem. Your gearbox is broken.

A: Oh no, that sounds bad. ( \_\_\_\_\_ キ \_\_\_\_\_ )

B: Unfortunately, it'll take about three days for the parts to arrive, so the earliest I could start working on it is Friday morning.

A: Can't you fix it by Friday evening? I have to attend my sister's wedding on Saturday, and I need the car by then.

B: ( \_\_\_\_\_ ク \_\_\_\_\_ ) If the parts arrive on time, I'll do my best to have it fixed by 5:00 PM on Friday.

A: Are you sure it can be done by then? I can't miss this wedding.

B: I'll work as quickly as possible. I can't guarantee it, but I think I can get it done by Friday evening.

A: You don't sound too sure. ( \_\_\_\_\_ ケ \_\_\_\_\_ )

B: I understand that. If for some reason it's not ready by then, I'll let you use one of our cars.

A: ( \_\_\_\_\_ コ \_\_\_\_\_ ) Thank you so much!

B: You're welcome. See you on Friday.

[選択肢]

1. How long will it take to repair?
2. How much will it cost?
3. I can see how important this is to you.
4. I really must get to the wedding on time.
5. It looks like you need some snow tires.
6. I've been having some trouble with my car.
7. That makes me feel a lot better.
8. You said it would be ready by Saturday afternoon!

IV. 次の英文は「アポロ宇宙船の安全対策」について述べたものです。(ア)～(コ)に入れる最も適切なものを選択肢から選びなさい。

During the 1960s, NASA made giant scientific and technological leaps in what was known as the Apollo program. The Apollo program ultimately (ア) to humans landing on the moon. Such advancements and endeavors were not without risks, and they resulted in some innovative safety procedures.

The rocket used in the Apollo missions, known as Saturn V, is still one of the most powerful rockets ever (イ) launched. Before takeoff, Saturn V held almost 2,000,000 L of highly flammable rocket fuel. If an accident had occurred and the rocket exploded, it would have created a 0.5 km wide, 1,000°C fireball destroying everything and everyone nearby. However, if there had been an emergency that gave the workers and astronauts time to react, such as a slow but unfixable fuel leak, there would have been a (ウ) that they could survive.

In order to protect human lives in the event of a catastrophic explosion, NASA created an underground safe room known as the “rubber room bunker.” Located 12 m below the concrete launch pad, this bunker was designed to (エ) the extreme forces and temperatures that would result from a rocket explosion. To access the rubber room, people in and around the rocket would have to get to the rocket’s launch platform. (オ) there, a 60 m slide connected the launch platform to the rubber room.

At the top of the slide, a sprinkler would spray the crew with water to help them slide (カ) . As they traveled down the slide, they would pick up speed quickly and reach the rubber room in just a few seconds. The walls of this room were lined with thick rubber to help absorb the shock waves from an (キ) , and that is how the bunker got its name. After exiting the slide, the crew would make their way through a thick, blast-proof door into the main part of the bunker, known as the blast room.

The blast room was a dome structure made of very thick steel and concrete. The dome was designed to handle the gigantic forces that would be (ク) if a rocket exploded. To further protect the people inside, the floor of the blast room was built on top of 24 giant springs. The springs separated the floor from the main dome structure, meaning the walls and floor could move (ケ) . This helped reduce the shockwaves from a blast to levels that humans could survive. The bunker was also stocked with enough food, water, and other supplies to allow 20 people to live in the bunker for up to five days.

The Apollo missions ended in the 1970s and, fortunately, the rubber room bunker never had to be used. However, it serves as an example of the great care NASA took to (コ) their space missions were as safe as possible.

- (ア) 1. along 2. counting 3. led  
4. movable 5. walked
- (イ) 1. anything 2. further 3. incomplete  
4. successfully 5. timed
- (ウ) 1. blown 2. chance 3. just  
4. management 5. wished
- (エ) 1. accessed 2. comment 3. negative  
4. submission 5. withstand
- (オ) 1. Another 2. Come 3. From  
4. Sit 5. With
- (カ) 1. actions 2. faster 3. impressed  
4. keep 5. unwanted
- (キ) 1. alternative 2. explosion 3. information  
4. option 5. underneath
- (ク) 1. approach 2. navigate 3. produced  
4. reward 5. services
- (ケ) 1. freedom 2. independently 3. rapid  
4. safety 5. slide
- (コ) 1. comfortable 2. ensure 3. kind  
4. open 5. summary

V. 次の (ア) ~ (オ) のそれぞれの日本語の意味を表す英文になるように、各英文の空欄に語または句を最も適切な順番に並べた場合、3番目にくるものの番号を選びなさい。ただし、文頭にくるものも小文字で書いてあります。また、必要なコンマが省略されている場合もあります。[解答欄のカ~コは使用しません。]

(ア) 事前に予約した人たちにチケットが配られた。

The tickets were \_\_\_\_\_ them beforehand.

- |                |                 |          |
|----------------|-----------------|----------|
| 1. distributed | 2. had reserved | 3. those |
| 4. to          | 5. who          |          |

(イ) その像は崩壊の恐れがあるために撤去された。

\_\_\_\_\_ of collapsing, it was removed.

- |               |            |         |
|---------------|------------|---------|
| 1. at         | 2. because | 3. risk |
| 4. the statue | 5. was     |         |

(ウ) 私が到着するやいなや警察が質問をし始めた。

The police started questioning \_\_\_\_\_.

- |          |            |       |
|----------|------------|-------|
| 1. after | 2. arrival | 3. me |
| 4. my    | 5. soon    |       |

(エ) 農業は人類の文明において重要な役割を果たしてきた。

Agriculture \_\_\_\_\_ in human civilization.

- |           |         |              |
|-----------|---------|--------------|
| 1. an     | 2. has  | 3. important |
| 4. played | 5. role |              |

(オ) この地域では大雪が屋根を崩落させる恐れがある。

The heavy snow in this area \_\_\_\_\_.

- |          |          |             |
|----------|----------|-------------|
| 1. can   | 2. cause | 3. collapse |
| 4. roofs | 5. to    |             |

[以上、試験問題終了]

# ■解答

## 数学

- (1) ア. 4 イ. 8 ウ. 6
- (2) エ. 2 オカ. 11 キク. 30 ケコサ. 407
- (3) シス. -1 セ. 1 ソ. 3 タ. 2 チ. 4
- (4) ツ. 5 テ. 9 ト. 2 ナニ. 14
- (5) ア. 2 イ. 8
- (6) ウエ. 21 オカ. 35
- (7) キ. 0 ク. 0 ケコ. -4 サ. 3 シ. 3 ス. 9 セ. 4 ソ. 1 タ. 6 チ. 5
- (8) ツ. 1 テ. 3 ト. 5 ナ. 9

## 英語

- I. (ア) - 2 (イ) - 3 (ウ) - 1 (エ) - 2 (オ) - 1  
(カ) - 3 (キ) - 2 (ク) - 1 (ケ) - 1 (コ) - 3
- II. A (ア) - 2 (イ) - 2 (ウ) - 3 (エ) - 1 (オ) - 3  
II. B (カ) - 4 (キ) - 1 (ク) - 1 (ケ) - 3 (コ) - 2
- III. A (ア) - 4 (イ) - 3 (ウ) - 6 (エ) - 7 (オ) - 2  
III. B (カ) - 6 (キ) - 1 (ク) - 3 (ケ) - 4 (コ) - 7
- IV. (ア) - 3 (イ) - 4 (ウ) - 2 (エ) - 5 (オ) - 3  
(カ) - 2 (キ) - 2 (ク) - 3 (ケ) - 2 (コ) - 2
- V. (ア) - 3 (イ) - 5 (ウ) - 1 (エ) - 1 (オ) - 4