

2021 年度学校推薦型選抜試験問題

数 学

【注意事項】

- 1 係員の指示があるまで、問題冊子を開いてはいけません。
- 2 この問題冊子は、表紙を除いて8ページ、解答用紙は2枚あります。
- 3 落丁、乱丁、印刷の不鮮明な箇所などがあったときは、手を挙げて係員に申し出てください。
- 4 解答用紙には、解答欄以外に受験番号記入欄がありますので、係員の指示に従って2枚とも正しく記入してください。
- 5 解答は、解答欄にのみ記入してください。
- 6 問題冊子の余白等は適宜利用してかまいませんが、どのページも切り離してはいけません。
- 7 試験終了時刻まで退室してはいけません。
- 8 解答用紙は持ち帰ってはいけません。その他は持ち帰ってください。

1 以下の空欄をうめよ.

(1) 2021 と 9761 の最大公約数は である.

(2) $(\log_2 9 + \log_8 3)(\log_3 4 + \log_9 4)$ を求めると である.

(3) 方程式 $4^x - 2^{x+1} - 15 = 0$ の解は $x =$ である.

(4) 方程式 $3x^2 - 2x + 5 = 0$ の 2 つの解を α, β とするとき, $\alpha^3 + \beta^3 =$
 である.

(5) 点 O を中心とした半径 1 の円周上に 3 点 A, B, C があり,
 $\cos \angle AOB = -\frac{1}{2}$, $BC = \sqrt{2}$ である. $\angle ACB$ が鋭角であるとき,

$AB =$, $AC =$ である.

(計算用紙)

2 袋 A には白玉 3 個と赤玉 4 個，袋 B には白玉 2 個と赤玉 3 個が入っている．以下の空欄をうめよ．

- (1) 袋 A から玉を 1 個とり出し，つづけて袋 B から玉を 1 個とり出すとき，どちらも赤玉である確率は である．
- (2) 袋 A から玉を 1 個とり出し，それをもとに戻さないで，つづけて袋 A から玉をもう 1 個とり出すとき，どちらも赤玉である確率は である．
- (3) 袋 A から玉を 1 個とり出して袋 B に入れ，よくかきまぜて，袋 B から玉を 1 個とり出して袋 A に入れる．このとき，袋 A の赤玉の個数が初めと変わらない確率は である．
- (4) 1 個のさいころを投げて，1 の目が出たら袋 A から，1 以外の目が出たら袋 B から玉を 1 個とり出す．とり出した玉が赤玉であったとき，それが袋 A に入っていた玉である確率は である．

(計算用紙)

3 平面上に三角形 OAB がある. 線分 OA を 1:2 に内分する点を L, 線分 OB の中点を M, 線分 AB を $s:(1-s)$ に内分する点を N とする. また, 三角形 OAB の重心を G, 三角形 LMN の重心を G' とする. $\overrightarrow{OA} = \vec{a}$, $\overrightarrow{OB} = \vec{b}$ とするとき, 以下の空欄をうめよ.

(1) \overrightarrow{OG} を \vec{a}, \vec{b} を用いて表すと, $\overrightarrow{OG} =$ である.

(2) $\overrightarrow{OG'}$ を \vec{a}, \vec{b}, s を用いて表すと, $\overrightarrow{OG'} =$ である.

(3) 3 点 O, G, G' が一直線上に並ぶとき, $s =$ である. この

とき, $\overrightarrow{OG'}$ を \vec{a}, \vec{b} を用いて表すと, $\overrightarrow{OG'} =$ である.

(計算用紙)

4 関数 $f(x) = x^3 - 6x^2 + 9x - 1$ について以下の空欄をうめよ.

(1) $f(x)$ は, $x =$ のとき, 極大値 をとり,
 $x =$ のとき, 極小値 をとる.

(2) 曲線 $y = f(x)$ と直線 $y = x - 1$ の3つの共有点の座標は
であり, このうち x 座標が正である点を P, Q とする. 線分 PQ と
曲線 $y = f(x)$ で囲まれた部分の面積は である.

(計算用紙)

(計算用紙)

2021 年度学校推薦型選抜試験問題

英 語

【注意事項】

- 1 係員の指示があるまで、問題冊子を開いてはいけません。
- 2 この問題冊子は、表紙を除いて11ページ、解答用紙は1枚あります。
- 3 落丁、乱丁、印刷の不鮮明な箇所などがあつたときは、手を挙げて係員に申し出て下さい。
- 4 この試験問題の解答はマーク方式になっていますので、記入の際には次のことに十分注意して下さい。

- ① HBの黒鉛筆を使用し、右のマーク例を（マーク例）
参考にしていねいに記入して下さい。

良い例	悪い例
	

- ② 訂正は、消しゴムできれいに消し、消し
くずを残してはいけません。
- ③ 所定の欄以外にはマークしたり、記入したりしてはいけません。
- ④ 解答用紙を汚したり、折り曲げたりしてはいけません。
- 5 解答用紙には、解答欄以外に次の記入欄がありますので、係員の指示に従って、それぞれ正しく記入し、マークして下さい。

- ① 氏名欄

氏名及びフリガナを記入して下さい。

- ② 受験番号欄・受験番号マーク欄

受験番号を左詰めで記入し、さらにその下のマーク欄にマークして下さい。

- ③ 年月日欄

記入しないでください。

- 6 解答は、解答用紙の解答欄にマークして下さい。例えば(20)と表示のある問いに対して(C)と解答する場合は、次の(例)のように問20の解答欄のCにマークして下さい。正しくマークされていない場合には、採点できないことがありますので注意して下さい。

(例)

解答 番号	解 答 欄
(20)	(A) (B) ● (D)

- 7 問題冊子の余白等は適宜利用してかまいませんが、どのページも切り離してはいけません。
- 8 試験終了時刻まで退室してはいけません。
- 9 解答用紙は持ち帰ってはいけません。その他は持ち帰ってください。

第1問: 次の会話 1~5 のそれぞれの空欄に入る最も適切なものを、a) ~ d)の中から一つずつ選びなさい。

1. Friend A: Sorry about that.

Friend B: _____

- a) It's sorry, too.
- b) I think that's mine.
- c) No problem.
- d) You're welcome.

2. Professor: Listen in pairs to the following audio and complete the table.

Student: _____

- a) How do I say this?
- b) How many people?
- c) What page is the table on?
- d) What table do I sit at?

3. Customer: Do you mind if I ask for two separate receipts?

Cashier: _____

- a) I am sorry for the inconvenience.
- b) Of course not.
- c) Yes, I can.
- d) Yes, I have the receipts with me.

4. Computer programmer 1: _____

Computer programmer 2: It is nothing like the previous ones.

- a) How do you like your new computer?
- b) Did you fix your computer?
- c) When did you buy your new computer?
- d) Which do you prefer, desktop or laptop?

5. Customer: _____

Waiter: Certainly, madam.

- a) A glass of water, please.
- b) I can't sit here?
- c) This is nice.
- d) When is a table available?

第 2 問: 次の英文 6~15 の下線部の表現の意味に最も近いものを、a) ~ d) の中から一つずつ選びなさい。

6. The answer was appropriate.

- a) incorrect
- b) long
- c) problematic
- d) suitable

7. The injury gradually healed.

- a) became painful
- b) became worse
- c) got better
- d) got bigger

8. It was a famous legend.

- a) book
- b) plant
- c) product
- d) story

9. That's an offensive thing to say.

- a) friendly
- b) mean
- c) positive
- d) sporty

10. The date of our next tournament was determined.

- a) brainstormed
- b) canceled
- c) decided
- d) postponed

11. These products are no longer manufactured in Japan.

- a) advertised
- b) available
- c) made
- d) sold

12. There is a clear distinction between the symptoms of allergies and colds.

- a) cause
- b) connection
- c) difference
- d) resemblance

13. Humans need to adapt to hotter weather.

- a) adjust
- b) adopt
- c) move
- d) sweat

14. The police tried to block the car.

- a) fix
- b) help
- c) move
- d) stop

15. Can they maintain it?

- a) get better
- b) get over
- c) keep as is
- d) make larger

第 3 問: 次の英文 16~30 のそれぞれの空欄に入る最も適切なものを、a) ~ d)の中から一つずつ選びなさい。

16. The classroom is an area _____ we can study.

- a) at
- b) in which
- c) what
- d) when

17. Recently, I _____ playing my guitar a lot.

- a) been
- b) had been
- c) have been
- d) were

18. The garden is well _____.

- a) keep
- b) kept
- c) keeping
- d) kept

19. Can you _____ to help move this sofa?

- a) came to me
- b) come for me
- c) comes to me
- d) come with me

20. The post office opens _____ 10 o'clock.

- a) at
- b) in
- c) of
- d) on

21. She _____ that she cheated.

- a) admit
- b) admitted
- c) admittedly
- d) admitting

22. It was nice _____ you the other day.
- a) saw
 - b) see
 - c) seeing
 - d) with seeing
23. The Amazon is _____ river.
- a) longest
 - b) most longest
 - c) the most longest
 - d) the longest
24. I will _____ you to leave the room.
- a) allow
 - b) allowed
 - c) allows
 - d) to allow
25. _____ will you start the presentation?
- a) Can
 - b) How
 - c) Should
 - d) Which
26. Thanks to the new technology, the company is expecting enormous _____ in sales.
- a) grew
 - b) grows
 - c) grown
 - d) growth
27. I won the lottery, and I _____ the money.
- a) am share
 - b) shares
 - c) sharing
 - d) will share

28. If I _____ able, I would have done so.
- a) am
 - b) had been
 - c) having
 - d) have been
29. By the end of this year, Dr. Anderson _____ at the university for 20 years.
- a) had been teaching
 - b) has taught
 - c) is teaching
 - d) will have taught
30. Working out for a long time every day is _____ for your health as you think.
- a) not as good
 - b) not as well
 - c) not as worse
 - d) worse

第 4 問: 次の英文を読んで、問い 31~40 について最も適切な答えを、a) ~ d) の中から一つずつ選びなさい。

この部分に掲載されている文章については、著作権上の問題から公表することができません。

*Adapted from: Maciejewski, A.J. (2019). Dragon Quest vs. Final Fantasy.
<https://videochums.com/article/dragon-quest-vs-final-fantasy>*

31. Which of the following statements is true about the first three games of the Dragon Quest series?
- a) They were more popular than any of the following sequels.
 - b) They were the first Japanese computer games to become popular outside of Japan.
 - c) They became popular only recently and they were not very popular back then.
 - d) They were very popular on release, and you can still enjoy them now.
32. Which of the following statements is true about Dragon Quest 4?
- a) Its story is about what happened after the first three games.
 - b) Its story is divided into several chapters.
 - c) Its technology is quite surprising even though it was released in 1986.
 - d) It is the best-selling game in the series.
33. Which of the following statements is true about Dragon Quest 8?
- a) English voice actors are involved in the English version.
 - b) It is the first game in the Dragon Quest series that was translated into English.
 - c) Its animation is better than that of Dragon Quest 11.
 - d) The stories are connected from Dragon Quest 8 to 11.

この部分に掲載されている文章については、著作権上の問題から公表することができません。

Adapted from: MacDorman, K. (2006). Subjective ratings of robot video clips for human likeness, familiarity, and eeriness: An exploration of the uncanny valley. In ICCS/CogSci 2006 long symposium: Toward social mechanisms of android science (pp. 26-29).

34. How many different scales did participants use?
- a) 3
 - b) 6
 - c) 14
 - d) 56
35. Which of these appeared in video clips?
- a) 56 participants
 - b) 13 robots and one human
 - c) a humanlike scale
 - d) the results of the experiment
36. What do the results show?
- a) A robot's similarity to humans causes people to find it strange.
 - b) A robot's similarity to humans causes people to find it familiar.
 - c) People's feelings are only affected by a robot's similarity to humans.
 - d) People's feelings are affected by a robot's similarity to humans and other things.

この部分に掲載されている文章については、著作権上の問題から公表することができません。

Adapted from: Rouse, M. (2020). Smart home or building. <https://internetofthingsagenda.techtarget.com/definition/smart-home-or-building>

37. How does smart home technology work?
- a) by controlling smartphones on a home-based network using energy efficiency
 - b) by controlling devices at home with a smart home app on the mobile devices
 - c) by controlling and sharing records of consumer data usage on mobile devices
 - d) by using home automation technology developed by homeowners
38. How do smart home systems function together with devices?
- a) by sharing consumer usage data between the devices and action automation based on user choices
 - b) by sharing consumer usage data between smartphone apps based on user choices
 - c) by providing homeowners security, comfort, convenience and energy efficiency based on automation plans
 - d) by sharing security, comfort and convenience-based devices and data usage plans among themselves

この部分に掲載されている文章については、著作権上の問題から公表することができません。

Adapted from: Temming, M. (2020, April 15). 'Spacefarers' predicts how space colonization will happen. ScienceNews. <https://www.sciencenews.org/article/spacefarers-book-predicts-how-space-colonization-will-happen>

39. Where are the humans in space today?
- a) Mars
 - b) the moon
 - c) cities in space
 - d) in a space station
40. Why did scientists imagine astronauts could go to Mars in the 1980s?
- a) because the Apollo missions landed on the moon
 - b) because the Apollo missions did not land on the moon
 - c) because cities in space were habitable in the 2000s
 - d) because a few astronauts are in a space station today

第 5 問: 次の英文を読んで、41~45 のそれぞれの空欄に入る最も適切なものを、a) ~ d) の中から一つずつ選びなさい。また、問い 46~50 について、英文の内容から最も適切な答えを、a) ~ d) の中から一つずつ選びなさい。

As a child, growing up in Scotland, I knew what happiness was. It was a sunny day during the summer holiday. Most days, however, were _____ 41 _____ and filled with schoolwork, household chores and part-time jobs, such as delivering newspapers. Throughout my schooldays, I looked forward to graduating from high school and being happy. I would not have to wake up early, do homework, or worry about getting whacked.

At our school, the whack was the most severe action teachers could use on children. Some teachers kept their whacking implement on their desks to create _____ 42 _____ in the students. One teacher had a training shoe that he used to hit or whack children with. Another teacher had a long stick that he banged on desks before hitting children with it. At that time, I thought happiness was not being at school. Later, having left school and worked for a couple of years, I worried that I would never be happy. The summer holidays and leaving school were the happiness goals I had focused on, but I had missed the most important aspect. Happiness is a state of mind.

Happiness is not external. Happiness is a choice. Anyone can choose to be happy at any time. Few people have enough money, enough time, or enough things; but we all have the choice to be satisfied with what we have now. Our life is the sum of all our decisions, so rather than _____ 43 _____ decisions, just accept them and be happy with what you have, what you are, and what you do. Many people cannot accept their current situation and get upset at others. Students who do not get good enough grades may _____ 44 _____ their teachers or their parents rather than accepting that the responsibility to study was their own. Top athletes often say that they were the happiest when they were training hard. The act of winning itself did not bring happiness. It makes sense. If you are happy when training, you will train more, and the more you train, the better you get. It is a virtuous circle. Be happy, take control of your life, and enjoy the _____ 45 _____ to your future.

41. a) good
b) fine
c) sunny
d) rainy
42. a) happiness
b) confidence
c) confusion
d) fear
43. a) looking for
b) regretting
c) making
d) dreaming of

44. a) reward
b) punish
c) thank
d) blame
45. a) back
b) journey
c) life
d) moment
46. While attending school, what did the author think happiness was?
a) something that happens in the future
b) getting whacked
c) something that could be decided
d) a state of mind
47. What is the whack?
a) a form of reward
b) a physical punishment
c) an item in the classroom
d) a kind of shoe
48. How does the author view happiness now?
a) as a choice
b) as having enough money
c) as a journey
d) as a virtuous circle
49. Which of the following statements is NOT true?
a) Children who fail exams may blame their teachers.
b) Everyone can be happy.
c) Doing your best while trying to achieve something brings happiness.
d) Happiness is determined by the people and things around you.
50. What advice does the author give?
a) Decide to be happy now.
b) Suffer now and be happy later.
c) Avoid negative decisions.
d) Blame others to avoid taking charge of your own choices.