2021 年度　入学試験問題

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，12 ページ，解答用紙は 4 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　各解答用紙（4 枚）の受験番号欄に受験番号を数字で記入してください。

5　解答は必ず各問題別の解答用紙の所定の欄に記入してください。

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 (1)から(4)までの問いに答えよ。また，(5)，(6)の空欄をうめよ。ただし，i は虚数単位である。

(1) 次の積分を求めよ。

    (i) $\displaystyle\int_{e}^{e^2} \frac{1 + \log(\log x)}{x}\, dx = \boxed{\text{イ}}$

    (ii) $\displaystyle\int_{0}^{\frac{\pi}{2}} x \cos^2 x\, dx = \boxed{\text{ロ}}$

(2) 極限値 $\displaystyle\lim_{n \to \infty} n \sum_{k=1}^{n} \frac{1}{(n+k)^2}$ を求めよ。 $\boxed{\text{ハ}}$

(3) 円 $x^2 + y^2 = 5$ と直線 $x + 3y + c = 0$ が異なる2点で交わるとき，定数 c の値の範囲を求めよ。 $\boxed{\text{ニ}}$

(4) 方程式 $\log_2(x+1) + \log_2(x+3) = \dfrac{2}{\log_x 2} + \log_2 \dfrac{7}{4}$ の解を求めよ。

    $\boxed{\text{ホ}}$

(5) $(1 + \sqrt{3}\, i)^{100} = a + bi$ と表すとき，$a = \boxed{\text{ヘ}}$，$b = \boxed{\text{ト}}$ である。ただし，a, b は実数とする。

(6) $0 \leqq \theta \leqq \pi$ において，$y = \cos^2 \theta - \sqrt{3} \sin \theta \cos \theta$ の最大値は $\boxed{\text{チ}}$ であり，そのときの θ は $\boxed{\text{リ}}$ である。

<div align="center">（計　算　用　紙）</div>

（計 算 用 紙）

$\boxed{2}$　数列 $\{a_n\}$ が

$$a_1 = 3, \quad a_{n+1} = (5n+5)a_n + (8n+8) \cdot n! \quad (n = 1, 2, 3, \cdots)$$

で定められるとき，以下の問いに答えよ。

(1) $b_n = \dfrac{a_n}{n!}$ とおくとき，b_{n+1} を b_n の式で表せ。　$\boxed{\quad イ \quad}$

(2) (1)で定めた数列 $\{b_n\}$ の一般項を求めよ。　$\boxed{\quad ロ \quad}$

(3) 数列 $\{a_n\}$ の一般項を求めよ。　$\boxed{\quad ハ \quad}$

(4) $\displaystyle \lim_{n \to \infty} \dfrac{a_{n+1}}{na_n}$ を求めよ。　$\boxed{\quad ニ \quad}$

(計 算 用 紙)

（計 算 用 紙）

3 一辺の長さが 2 の立方体 OABC‐DEFG がある。線分 OG と線分 CD の交点を I，辺 AE を $t : 1 - t$ に内分する点を P とする。$\overrightarrow{OA} = \vec{a}$, $\overrightarrow{OC} = \vec{c}$, $\overrightarrow{OD} = \vec{d}$ とおく。△PFI の面積を S とおく。
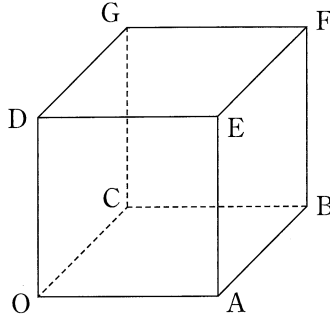
このとき，以下の空欄をうめよ。

(1) $\overrightarrow{FI}$ を $\vec{a}$, $\vec{c}$, $\vec{d}$ を用いて表すと $\overrightarrow{FI} = \boxed{\quad イ \quad}$ である。

(2) $\overrightarrow{FP}$ を $\vec{c}$, $\vec{d}$, t を用いて表すと $\overrightarrow{FP} = \boxed{\quad ロ \quad}$ である。

(3) $\overrightarrow{FI} \cdot \overrightarrow{FP}$ を t を用いて表すと $\overrightarrow{FI} \cdot \overrightarrow{FP} = \boxed{\quad ハ \quad}$ である。

(4) S^2 を t を用いて表すと $S^2 = \boxed{\quad ニ \quad}$ である。

(5) S の最小値は $\boxed{\quad ホ \quad}$ である。

(計 算 用 紙)

（計 算 用 紙）

4 赤玉2個と白玉3個が入った袋Aと，赤玉2個と白玉1個が入った袋Bと，赤玉1個と白玉2個が入った袋Cがある。最初に，袋Aから1個の玉を取り出して袋Bに入れ，よくかき混ぜる。次に，袋Bから1個の玉を取り出して袋Cに入れ，よくかき混ぜる。最後に，袋Cから1個の玉を取り出す。このとき，以下の空欄をうめよ。

(1) 袋Bから取り出した玉が白玉である確率は　　イ　　である。

(2) 袋Cから取り出した玉が白玉である確率は　　ロ　　である。

(3) 少なくともひとつの袋から白玉を取り出す確率は　　ハ　　である。

(4) 袋Cから取り出した玉が赤玉であったとき，袋Aから取り出した玉が白玉である確率は　　ニ　　である。

<div align="center">（計　算　用　紙）</div>

（計 算 用 紙）

5 関数 $f(x) = (x-1)^2(x+2)^2 e^x$ を考える。曲線 $y = f(x)$ を C とする。このとき，以下の問いに答えよ。

(1) $f(x)$ の増減，極値を調べて，増減表をかけ。その際，極大値，極小値を明確にかくこと。ただし，C の凹凸，変曲点は調べなくてよい。（結論に至る過程も記述すること。）

(2) 実数の定数 a, b, c, d に対して，$F(x) = (x^4 + ax^3 + bx^2 + cx + d)e^x$ が $F'(x) = f(x)$ をみたすとき，$F(x)$ を求めよ。$F(x) =$ ┌ イ ┐

(3) $-2 \leqq x \leqq 1$ の範囲において，C と x 軸で囲まれた部分の面積を S とする。(2)の結果を用いて，S を求めよ。$S =$ ┌ ロ ┐

(計 算 用 紙)

（計 算 用 紙）

6 θ をすべての自然数 n に対して $\cos n\theta \neq 0$ をみたす定数とする。数列 $\{a_n\}$ を次で定義する。

$$a_1 = -\tan\theta, \quad a_{n+1} = \frac{a_n \cos\theta - \sin\theta}{a_n \sin\theta + \cos\theta} \qquad (n = 1, 2, 3, \cdots)$$

このとき，すべての自然数 n に対して

$$a_n = -\tan n\theta$$

がなりたつことを，数学的帰納法を用いて証明せよ。

(計 算 用 紙)

（計 算 用 紙）

2021 年度　入学試験問題

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，29 ページあります。

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　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ください。

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，ていねいに記入してください。

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。

	良い例	悪い例
	●	⊘ ⊗ ◑ ◓

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，マークしてください。

① 　氏名欄

氏名及びフリガナを記入してください。

② 　**受験番号欄・受験番号マーク欄**

受験番号を数字で記入し，さらにその下のマーク欄にマークしてください。

6　解答は，解答用紙の解答欄にマークしてください。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**解答番号(20)の解答欄のC**にマークしてください。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ください。

（例）

解答番号	解　　答　　欄
(20)	Ⓐ　Ⓑ　●　Ⓓ

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)～(10)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) Classmate A: Is chemistry canceled today?

Classmate B: _____

(A) As far as I know, yeah.

(B) I think it's in room 20 B.

(C) No, it's next week.

(D) Yeah, it's always on Thursdays.

(2) Father: _____

Daughter: Ah, okay, I'll catch you later.

(A) I finished yesterday.

(B) I'm going to leave early today.

(C) We were throwing the ball around.

(D) You don't need to read this today.

(3) Waiter: Is there something the matter?

Customer: _____

(A) I think there's a hair in my soup.

(B) Nothing matters.

(C) That's what I heard.

(D) Yes, I'm fine thanks.

(4) Person 1: Would you like to come to my house for a BBQ this weekend?

Person 2: _____

(A) Great, thanks. Should I bring some food or drinks?

(B) Great, thanks. What will we do at your house?

(C) I'm sorry, I don't have a BBQ this weekend.

(D) I'm sorry, I am busy next weekend.

(5) Mum: How do you like living in Aizu?

Son: _____

(A) I had fun in Aizu.

(B) I liked living there.

(C) I really enjoy moving there.

(D) It's very fun in Aizu.

(6) Person 1: _____

Person 2: Wear warm clothes because the game is outside.

(A) How should I dress for tonight?

(B) Why are we wearing warm clothes?

(C) What are your plans tonight?

(D) What is the weather like there?

(7) Friend 1: _____

Friend 2: No, I don't think you are allowed in with cans.

(A) Am I allowed to come on?

(B) Can I take cans in?

(C) I will allow cans in today.

(D) Let's buy some cans in the stadium.

(8) Husband: What is this ticket for?

Wife: _____

(A) Did you want to go to the concert?

(B) It is not for you.

(C) It is valid for two more years.

(D) My friend invited me to her art exhibition.

(9) Friend 1: Why don't you buy another umbrella?

Friend 2: _____

(A) I didn't buy this one.

(B) No, I want to buy a new one.

(C) Thanks, but you don't have to.

(D) Why? Do you think my umbrella is too old?

(10) Journalist: _____

Interviewee: I could hardly believe it.

(A) Can I ask you a question?

(B) How did you feel when you first heard about it?

(C) How hard was it for you to overcome?

(D) When did you hear about it?

第 2 問 次の英文(11)～(30)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。

(11) <u>Crops</u> are important for farmers.

    (A) equipment

    (B) grown produce

    (C) land

    (D) workers

(12) He <u>confessed</u> to the man.

    (A) brought something

    (B) gave something

    (C) told a lie

    (D) told the truth

(13) She was <u>admitted</u> to the degree program.

    (A) accepted

    (B) administered

    (C) admired

    (D) refused

(14) The news <u>circulated</u> around the school.

    (A) gathered

    (B) heard

    (C) mixed

    (D) spread

(15) He has no <u>patience</u>.

    (A)   has faith

    (B)   has free time

    (C)   knows what is fair

    (D)   waits willingly

(16) There were four <u>distinct</u> problems.

    (A)   connected

    (B)   difficult

    (C)   related

    (D)   separate

(17) She wanted to <u>pursue</u> it.

    (A)   continue with

    (B)   damage

    (C)   give up

    (D)   help

(18) He broke the <u>strap</u>.

    (A)   material for holding things together

    (B)   shallow dish for food

    (C)   top cover

    (D)   promise

(19) I will <u>relocate</u> next month.

    (A)   join

    (B)   make

    (C)   move

    (D)   work

(20) I have used many online banking systems, and this one is <u>relatively</u> easy to use.

(A) comparatively

(B) extremely

(C) mostly

(D) reluctantly

(21) They <u>dashed</u> over it.

(A) fought

(B) looked quickly

(C) moved quickly

(D) moved slowly

(22) These books are <u>specifically</u> written for young readers.

(A) easily

(B) educationally

(C) particularly

(D) speedily

(23) They had a <u>spare</u> chair.

(A) broken

(B) extra

(C) new

(D) nice

(24) I am <u>upset</u>.

(A) famous

(B) rich

(C) tired

(D) unhappy

(25) Some of the politicians are taking <u>radical</u> approaches to social problems.

(A) extreme

(B) gradual

(C) practical

(D) reliable

(26) The baseball game was <u>called off</u> because of the weather.

(A) canceled

(B) held indoors

(C) resumed

(D) sold out

(27) The network will be down for two hours for routine <u>maintenance</u>.

(A) checkup

(B) period

(C) training

(D) trial

(28) They were <u>reluctant</u> to continue.

(A) able

(B) unwilling

(C) unable

(D) wanted

(29) It was an interesting <u>theory</u>.

(A) fact

(B) idea

(C) instruction

(D) story

(30) It took me 30 minutes to <u>discover</u> how to set up a password on this computer.

(A) ask about

(B) explain about

(C) find out

(D) find numbers

第３問 次の英文(31)～(60)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。

(31) The popularity of electric cars has been increasing steadily _____ the past five years.
  (A) by
  (B) from
  (C) over
  (D) toward

(32) While I _____ the game, I saw the accident.
  (A) am watching
  (B) had watched
  (C) watch
  (D) was watching

(33) Nowadays, I often _____ snowboarding in winter.
  (A) go
  (B) going
  (C) go to
  (D) went

(34) Going by train is _____ than driving.
  (A) more quicker
  (B) quicker
  (C) quickest
  (D) quickly

(35) Come home _____ midnight.

(A) by

(B) in

(C) on

(D) until

(36) The drink was _____.

(A) refresh

(B) refreshes

(C) refreshing

(D) refreshingly

(37) The book is _____ finished.

(A) all most

(B) almost

(C) most

(D) ready

(38) There was _____ cheese than I thought.

(A) less

(B) fewer

(C) fewest

(D) smaller

(39) Shall I check _____ data set?

(A) in

(B) on

(C) these

(D) this

(40) He _____ when the fire started.

(A) had been studying

(B) has been studying

(C) is studying

(D) studied

(41) _____ did you see at the concert last night?

(A) Where

(B) Why

(C) Who

(D) With whom

(42) I have not _____ anything today.

(A) ate

(B) eat

(C) eaten

(D) eating

(43) _____ , please describe your hometown.

(A) Detailing

(B) In detail

(C) On detail

(D) With detail

(44) Tomorrow, John _____ a letter to his friend in India.

(A) has been writing

(B) will have writing

(C) will write

(D) wrote

(45) Yesterday, my boss _____ me an email.

(A) is sending

(B) sent

(C) sended

(D) sending to

(46) I'm _____ my bag from my home.

(A) collected

(B) collecting

(C) collect

(D) will collect

(47) Our store features a variety of items, _____ other local shops.

(A) unless

(B) unlike

(C) while

(D) yet

(48) That is a very _____ river.

(A) smell

(B) smeller

(C) smelling

(D) smelly

(49) The journey here was _____.

(A) tire

(B) tired

(C) tiredly

(D) tiring

(50) Phone me when you want to be _____.

    (A) pick up

    (B) picked up

    (C) picking up

    (D) picks up

(51) If you plan _____ the event, you should contact the person in charge.

    (A) join

    (B) joined

    (C) joining to

    (D) to join

(52) The new road system significantly _____ the number of car accidents.

    (A) having reduced

    (B) reduce

    (C) reduced

    (D) reducing

(53) The topic of the presentation was about _____ we should approach global warming.

    (A) how

    (B) what

    (C) which

    (D) who

(54) Only _____ with permission can enter this building.

    (A) they

    (B) those

    (C) who

    (D) whose

(55) The moving company recommended us to use a _____ bigger box.

(A) slight

(B) slighter

(C) slightest

(D) slightly

(56) _____ many people just download music these days, some people still purchase CDs.

(A) Although

(B) Despite

(C) However

(D) Unless

(57) This map indicates where people should gather in _____ emergency.

(A) case

(B) cases

(C) case of

(D) the case

(58) After _____ five weeks of training, new employees will be assigned to different departments.

(A) complete

(B) completed

(C) completing

(D) completion

(59) We will _____ be able to play soccer outside when the rainy season is over.

(A) ever

(B) once

(C) soon

(D) yet

(60) _____ 2003, we have built our reputation as a global company by selling our products to 20 countries.

(A) Before

(B) By

(C) In

(D) Since

第4問 次の英文を読んで，問い(61)～(80)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。

Adapted from: O'Leary, Timothy. Computing Essentials (2019). McGraw-Hill Higher Education.

(61) What is the main purpose of the text?

(A) advising people on how to save money online

(B) advising people to use e-commerce more

(C) explaining how to buy items online

(D) explaining some advantages of e-commerce

(62) Which benefits of e-commerce are NOT mentioned in the text?

(A) Buyers can find good deals.

(B) E-commerce is convenient for buyers.

(C) Sellers can save money.

(D) There are benefits for both buyers and sellers.

(63) Which of the following is true?

(A) E-commerce is becoming more popular nowadays.

(B) E-commerce is not used widely as it requires an Internet connection.

(C) E-commerce requires a seller to have a retail outlet.

(D) E-commerce requires buyers to make purchases during business hours.

Adapted from: Doyle, A. (2020). How to Prepare for a Job Interview.
https://www.thebalancecareers.com/how-to-prepare-for-a-job-interview-2061361

(64) What could be one effective way to start preparing for job interviews?

　　(A)　Create a list of professional skills you have.

　　(B)　Create a list of cities where the companies you prefer are located.

　　(C)　Identify the qualities of the interviewer.

　　(D)　Study the job posting closely and then research the company.

(65) What can we find out from the job description in a job advertisement?

　　(A)　time it will take to research the company

　　(B)　what the company is looking for in a candidate

　　(C)　professional and personal qualities in a candidate

　　(D)　personal qualities and how to research the employer

(66) What could be the ideal sequence of tasks to do when preparing for a job interview?

　　(A)　Identify the companies, make a list of the desired skills and knowledge, and then identify the skills that may fit in with the interview questions.

　　(B)　Make a list of the companies, desired skills, knowledge and quality, and then identify the skills you possess.

　　(C)　Examine the job posting and the company, make a list of desired skills, knowledge and qualities, and then identify the skills you possess.

　　(D)　Research the companies, the list of employees, and the organizational structure and culture that are critical for success.

Adapted from: O'Leary, Timothy. Computing Essentials. (2019). McGraw-Hill Higher Education.

(67) Which features of automated driving do NOT exist in cars that you can buy now?

(A) completely automated driving requiring driver supervision

(B) driving with only a small amount of human control

(C) keep the car's speed constant while driving

(D) park the car automatically with some driver assistance

(68) Which of the following is true?

(A) Self-driving cars with autonomy rating from level 0 to 3 are currently on the road.

(B) Self-driving cars with autonomy rating from level 0 to 5 are currently on the road.

(C) Uber and Google are testing fully autonomous cars.

(D) Uber and Google are testing cars at level 2.

(69) Which of the following topics is most likely to follow this text?

(A) how self-driving cars will affect businesses and the economy

(B) how self-driving cars will affect car ownership

(C) traffic accidents involving self-driving cars

(D) predictions for development of level 4 and 5 autonomous cars

Adapted from: Lerman, R. (2020, May 8). Facebook error caused apps including Spotify and TikTok to crash.

https://www.washingtonpost.com/technology/2020/05/07/facebook-app-error-spotify-tiktok/

(70)　Which company is responsible for the apps on people's iPhones crashing?

　　(A)　DoorDash

　　(B)　Facebook

　　(C)　Spotify

　　(D)　TikTok

(71)　What caused people's iPhone apps to crash?

　　(A)　a problem with an update

　　(B)　ads about mobile apps

　　(C)　people sharing on Facebook

　　(D)　too many apps on their phones

(72)　What is the purpose of the tool kit?

　　(A)　to help people share information on Facebook

　　(B)　to help app developers track certain information

　　(C)　both of the above

　　(D)　none of the above

Adapted from: Walker, Matthew. (2017). Why We Sleep. Penguin Books.

(73) What is the main purpose of this text?

    (A) to advise readers

    (B) to give an opinion

    (C) to inform readers

    (D) to ask questions

(74) Which of the following implies you are NOT getting enough sleep?

    (A) You don't need coffee in the morning.

    (B) You need an alarm clock to wake you up.

    (C) You feel refreshed in the morning.

    (D) You get eight hours of sleep per night.

(75) What could be one way to identify people wearing masks and to measure temperatures?

(A) by asking people from the security companies to wear masks for facial recognition

(B) by using facial recognition and temperature-sensing technology together

(C) by using global security solutions to develop facial recognition technology

(D) by using facial recognition technology to detect if someone has a fever

(76) How are companies reaching a decision about asking someone to leave a facility or to seek medical attention?

(A) by contacting people wearing masks and measuring temperatures to detect people with fever

(B) by updating facial recognition systems to identify companies where people are working with fever

(C) by adding temperature-sensing technology to global security solutions and detecting if someone has a fever

(D) by adding temperature-sensing technology to facial recognition systems and detecting if someone has a fever

Adapted from: Juul, A. (2020). A history of the computer game.
https://www.jesperjuul.net/thesis/2-historyofthecomputergame.html

(77) Which of the following statements is NOT true about Spacewar!?

(A) It allows two players to play at the same time.

(B) It was developed in 1962.

(C) Its graphics are more complex than those of many games in the 1980s.

(D) Most people assume that Spacewar! is not the oldest computer game.

(78) Which of the following is true about Spacewar!?

(A) If you attack the other spaceship by ramming yourself into it, you win.

(B) Two players cooperate and beat the enemy together.

(C) While one player is playing, the other player needs to wait.

(D) Whoever shoots the other player first wins.

Adapted from: AFP-Jiji (2020, May 8). China's new spacecraft returns to Earth, officials say.

The Japan Times. https://www.japantimes.co.jp/news/2020/05/08/asia-pacific/

science-health-asia-pacific/china-spacecraft-returns#.XrX3rRMzZDM

(79)　Which phrase best describes the spacecraft mission?

　　(A)　a permanent space station

　　(B)　an important step in a larger plan

　　(C)　a successful manned moon mission

　　(D)　a problem for the China Manned Space Agency

(80)　Why was the mission described as successful?

　　(A)　because there was a problem

　　(B)　because it sent astronauts to the moon

　　(C)　because it arrived at a space station

　　(D)　because it landed safely

次の英文を読んで，⑻～⑻，㈱～㈨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⑻～⑼，⑼～⑽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。

Crossing the ocean on a yacht can be one of the most exciting, but at the same time dull, challenges that you can undertake. If the weather suddenly changes and a storm approaches, life is anything but boring — in fact, it can get very dangerous! And if dolphins, whales, or other ___⑻___ swim beside your boat in the middle of the ocean, it is incredibly interesting and beautiful. On the other hand, you can sail for weeks without seeing land or even another boat. Face-to-face ___⑻___ is limited to the people on board with you, although you can still speak to others via radio.

Most sailors are well prepared and bring along all the food and water they need for a journey. However, you cannot anticipate everything that could happen on a trip across the ocean, and sometimes ___⑻___ run out. In that case, it is necessary to find your own food and collect your own rainwater when it rains. If you are lucky and do catch a ___⑻___, it is thrilling. It is not easy cooking on a small boat though, especially when the seas are rough. So, you often eat the same food over and over again, which can be quite tiresome.

Being isolated for a long time can make you appreciate other humans more. It also allows you the time to read many good books. However, if you really want to get away from your yacht for a while, you do not have that ___⑻___. So, somewhat paradoxically, ocean crossings are adventures that are both loved and hated by sailors around the world.

(81) (A) sailors

(B) swimmers

(C) sea creatures

(D) sharks

(82) (A) competition

(B) commerce

(C) coming

(D) communication

(83) (A) supplies

(B) clothes

(C) people

(D) ships

(84) (A) cold

(B) fish

(C) breath

(D) thief

(85) (A) land

(B) option

(C) car

(D) deal

(86) What is the purpose of the passage?

(A) to warn people not to sail across the ocean

(B) to tell a story about a sailor who crossed the sea

(C) to describe the advantages and disadvantages of ocean sailing

(D) to be a survival guide for someone who wants to sail across the ocean

(87) According to the passage, what do most people do before a sailing trip?

(A) They get food and water ready on the boat.

(B) They get lots of exercise and sleep.

(C) They read many good books and appreciate others.

(D) They anticipate all that could happen on the trip.

(88) According to the passage, what happens when crossing the ocean, if there is bad weather?

(A) Everything is boring.

(B) You can call for help on the radio.

(C) It is interesting and beautiful.

(D) Your life could be in danger.

(89) According to the passage, why do sailors both like and dislike sailing across the sea?

(A) because it is a good book

(B) because there are so many good and bad things that can happen

(C) because they can get away from their yacht from time to time

(D) because they must eat raw fish so often

(90) Which negative aspect of ocean crossings is NOT mentioned in the passage?

(A) lack of variety of food

(B) difficulty of cooking

(C) storm danger

(D) getting lost

Smallpox is a disease that killed around half a billion people from 1880 to 1980. It was previously known as speckled monster and red plague because of the red spots that covered the skin of those infected. The ___(91)___ of the illness are unclear, but are often attributed to African rodents, such as rats and gerbils. Although cowpox has a similar DNA structure to smallpox, it is not a deadly disease. Given its name, we can work out which animal can carry this disease. In the eighteenth century, Edward Jenner promoted the use of the cowpox virus as a natural vaccine. When infected with this virus, people develop immunity against smallpox.

This immunity can be developed naturally in people who have been exposed to the actual disease. The other way is to develop immunity by being exposed to a weaker form of the disease through ___(92)___. The World Health Organization ran a very successful campaign, which has resulted in no new cases of smallpox since the late 1970s. This has potentially saved over a quarter of a billion people over the last five ___(93)___. Although there is considerable evidence supporting the benefits of vaccination, some parents, known as anti-vaxxers, refuse to have their children vaccinated. Anti-vaxxers tend to focus on the possible side effects, but fail to consider the effect of their choices on the ___(94)___.

Measles is a disease that can cause death, particularly in children. Countries, such as the United States and the Netherlands, had almost eliminated measles. However, the increase in the number of anti-vaxxers has led to increases in the number of cases of measles. Social network influencers who can ___(95)___ misinformation directly to their followers contributed to the rise in the number. Previously, people sought medical information from experts rather than YouTubers.

(91) (A) symptoms

(B) treatments

(C) effects

(D) origins

(92) (A) vaccination

(B) accidents

(C) rodents

(D) magnets

(93) (A) campaigns

(B) centuries

(C) vaccinations

(D) decades

(94) (A) population

(B) medicine

(C) government

(D) doctors

(95) (A) acquire

(B) know

(C) receive

(D) spread

(96) What is speckled monster?

(A) an animal carrying smallpox

(B) an African rodent

(C) smallpox

(D) a vaccine

(97) What did Edward Jenner do?

(A) invented smallpox

(B) discovered smallpox

(C) encouraged people to take the vaccine

(D) promoted nature

(98) According to the passage, which of these statements is NOT true?

(A) Cowpox can act as a vaccine.

(B) Vaccines help people develop immunity.

(C) Smallpox no longer kills people each year.

(D) Influencers recommended people get vaccinated.

(99) According to the passage, what are anti-vaxxers?

(A) people who have side effects

(B) people who refuse vaccinations for kids

(C) vaccines against a disease

(D) vaccines with no side effects

(100) Who did people use to get medical advice from?

(A) celebrities

(B) experts

(C) parents

(D) influencers