啓明学院高等学校

Hands and hearts are trained to serve
both man below and God above.

2017年度　入学試験問題
【英　語】

［試験時間50分］

※　解答はすべて解答用紙に記入しなさい。

受 験 番 号

〔1〕 次の1〜5 の英語で説明されているものを1つ選び、A〜Dの記号で答えなさい。

1) costing a lot of money
   A) intelligent　　　B) expensive　　C) local　　　　D) possible

2) feeling this means that you feel you are not with your friends
   A) only　　　　B) holy　　　　C) lonely　　　　D) kindly

3) someone whose job is to put out fires and help people to escape from dangerous situations
   A) firefighter　　B) doctor　　　C) police officer　　D) lawyer

4) something that you have in your life; often you learn something from it
   A) experience　　B) exit　　　　C) export　　　　D) excitement

5) to make something ready to be used
   A) provide　　　B) prepare　　　C) pull　　　　D) promote

〔2〕 次の英文を読み、①〜⑩について最も適当な語句を選びなさい。

　　Yoshiki was not good at English when he was in junior high school. In his first English class, he was shocked ①(heard / to hear / hear) his American teacher speak because he did not understand her at all. He always got terrible scores on the English examinations. His teachers often gave him special classes after school. Yoshiki studied hard to thank them for their help, ②(but / so / and) his grades didn't become better. When he was in the third year, it was difficult ③(to / for / with) him to be in the English classes. He felt like he got sick from just being in the classes.

　　He became a senior high school student in the spring of 2015. ④(Moreover / Because / Though) he still had difficulty with English, he decided not to run ⑤(into / after / away) from English in high school. He studied everything in the junior high school textbooks again. He also decided to join a study trip to England after he had thought about it for a long time.

　　There were 24 students in this group. Yoshiki's English grade was the ⑥(worst / worse / bad) among them. At the beginning, he did not do well in the group. However, one day the students were preparing a dance for a party in England. The other students said that Yoshiki was the best dancer and asked him to be their group leader. Yoshiki was very happy to ⑦(choose / chose / be chosen) as the leader.

　　The group visited England in the summer. Yoshiki was in a class ⑧(whose / which / what) had no other Japanese classmates. He was very nervous at first, but his classmates from the EU countries ⑨(was / be / were) very kind to him. Yoshiki enjoyed studying with them. When the Japanese group danced at the party, the European students asked Yoshiki to teach them the dance. He taught about 80 students using a little English and a lot of gestures. He could not believe he was using English to communicate. After the party, he wanted to speak English more so he could make friends all over the world. He thought he ⑩(would / will / would have) never forget the summer of 2015.

－2－

〔3〕 次の英文を読み、1～5の設問にA～Dの記号で答えなさい。

Honesty

In the famous story *Pinocchio* by the Italian writer Carlo Collodi, a puppet named Pinocchio is made from wood by Geppetto. Pinocchio dreams of becoming a real boy, but often gets in trouble. When he gets in trouble, he tells lies so that people will not get angry at him. In the story, when Pinocchio tells a lie, his nose grows. When we tell lies, our noses do not grow, but there are some things that happen to our body. When we lie, we sweat more, our breathing increases in speed, and our voice gets higher.

Like Pinocchio, we tell lies to protect ourselves from difficulties. When your mother asks if you have been studying for an exam, but you have been playing a computer game, you might tell her a lie so that she does not get angry at you.

Not all lies are told for bad reasons. Sometimes we tell a lie to protect someone's feelings. We call these white lies. Let's say, your friend gets a new haircut and you do not think it is very nice. If you said, "Your haircut is ugly," it would hurt your friend's feelings. So you tell her that her haircut is cool or cute. We tell these white lies, so that our friends' feelings will not get hurt.

People know how to tell lies, but animals are unable to do so. Gorillas are able to learn how to use sign language and can even tell jokes, but they cannot be taught how to tell lies.

In the story of *Pinocchio*, Pinocchio is turned from being a wooden puppet into a real boy when he has the strength to stop lying and is finally honest with other people. It is sometimes difficult to tell the truth, but people will trust us if we have the strength to tell them the truth.

1) Who was the writer of the story *Pinocchio*?

    A) Geppetto.

    B) Carl.

    C) Collodi.

    D) Disney.

2) What happened to Pinocchio when he told a lie?

    A) His breathing increased.

    B) His nose grew.

    C) His voice became higher.

    D) His sweat increased.

3) Why do many people tell lies?

    A) To play a game.

    B) To have fun.

    C) To protect themselves.

    D) To get angry.

4) What is something that gorillas are unable to do?

    A) Use sign language.

    B) Tell lies.

    C) Tell jokes.

    D) Tell the truth.

5) What happens to Pinocchio when he tells the truth?

    A) He becomes powerful.

    B) He becomes a real boy.

    C) He becomes a puppet.

    D) He becomes Geppetto.

〔4〕 次の英文を読み、1 ～5 の設問に英語の文(フル・センテンス)で答えなさい。

The Shoeless in the World

When you meet someone for the first time, where do you look first? Probably, you look at the person's face or clothes. Probably, you look at the person's feet or shoes last, if at all. However, shoes are a very important part of what people wear every day. People in Japan and other rich countries have many pairs of shoes. The average woman in the U.K. has about 19 pairs of shoes according to a survey taken in 2010.

A good pair of shoes is worth paying a lot of money for because we stand and walk around in them for many hours every day. We need good support for our feet. Shoes are very important for athletes, too. The captain of the Japanese World Cup rugby team, Michael Leitch, forgot to bring his shoes to a championship game a few years ago and had to wear a pair that was too small for him. He couldn't play his best, and his team lost.

We might think that wearing shoes is normal, but many people in poor countries around the world do not wear shoes in their daily lives. About 300 million children in the world want to wear shoes, but do not have the money to buy them. Without shoes people can cut and hurt their feet and can get sick, too. Recently, some NGO groups have started asking people to give their old shoes to people in poor countries. These days, if you go to Western countries you can see big boxes at public places that people can use to put shoes and clothes in to be sent to poor countries. Shouldn't we try to do that in Japan, too?

1) According to the passage, what do people usually look at first when they meet someone?

2) What information did a survey in 2010 find?

3) Who couldn't play his best rugby when he forgot his shoes?

4) How many children in the world do not wear shoes?

5) Where can you see big boxes that people can use to give shoes for other people?

〔5〕 次の英文の問いについて、自分の考えを150語程度の英語で答えなさい。

What are the three most important things in your life?

入学試験問題解答用紙 高校 【英 語】 （2017年2月10日実施）

受験番号

得 点

〔1〕

1)	2)	3)	4)	5)

〔2〕

①	②	③	④	⑤
⑥	⑦	⑧	⑨	⑩

〔3〕

1)	2)	3)	4)	5)

〔4〕

1)

2)

3)

4)

5)

〔5〕

啓明学院高等学校

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both man below and God above.**

2017年度 入学試験問題
【数 学】

［試験時間 50 分］

※ 解答はすべて解答用紙に記入しなさい。

※ 解答用紙に［式］と書いてあるところには
  途中の式など考え方を書きなさい。

※ 計算は問題用紙の余白を利用しなさい。

受 験 番 号

1　次の問題を（　）内の指示にしたがって解きなさい。

(1)　$5 \times (-3^2) - \left(-\dfrac{2}{5}\right)^2 \div \left(-\dfrac{1}{5}\right)^3$　　　　　（計算しなさい）

(2)　$(-3x^2 y)^3 \div \left(-\dfrac{6}{5}x^3 y\right) \times \dfrac{9}{10}x^2 y^3$　　　　　（計算しなさい）

(3)　$36xy^2 - 12xy + x$　　　　　（因数分解しなさい）

(4)　$\sqrt{5}(\sqrt{45} - 2) - (1 - 2\sqrt{5})^2 - \dfrac{\sqrt{80} + 10}{\sqrt{5}}$　　　　　（計算しなさい）
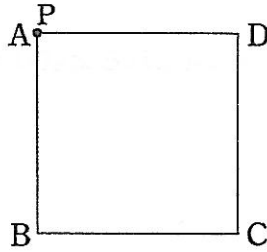
(5)　$x^2 - 6x = 3$　　　　　（2次方程式を解きなさい）

2　ある容器に 10 ％の食塩水 100 g が入っています。この容器から x g の食塩水を取り出し，代わりに x g の水を入れてよくかき混ぜました。このとき，次の問いに答えなさい。

(1)　この容器に残された食塩水に含まれる食塩の量を x を用いて表しなさい。

(2)　さらに，初めに取り出した 5 倍の量の食塩水を取り出し，それと同じ量の水を入れてよくかき混ぜたところ，食塩水の濃度は 4.5 ％になりました。x の値を求めなさい。

3   下の図のように，正方形 ABCD の辺上を左回りに移動する点 P があります。
点 P は点 A を出発点とし，さいころを投げて出た目の数だけ頂点を移動します。
このとき，次の問いに答えなさい。

```
 P
A•━━━━━━━━D
 ┃        ┃
 ┃        ┃
 ┃        ┃
 ┃        ┃
B┗━━━━━━━━C
```

(1) さいころを 1 回投げた後，点 P が 頂点 B にある確率を求めなさい。

(2) さいころを 2 回投げた後，点 P が 頂点 A にある確率を求めなさい。

4　下の図のように，2つの放物線 $y=x^2$，$y=\frac{1}{3}x^2$ 上に点 A，B，C，D があります。線分 AB，線分 CD は y 軸に平行で，線分 AD，線分 BC は x 軸に平行です。このとき，次の問いに答えなさい。
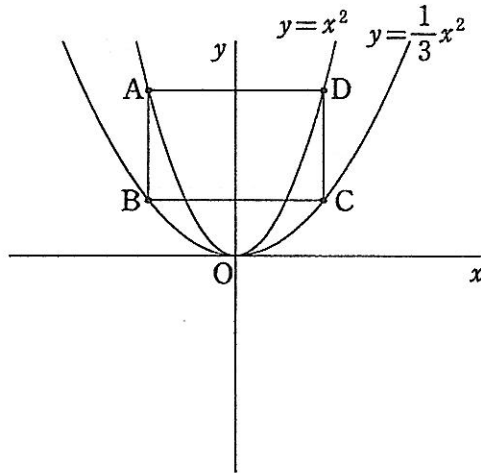
(1)　点 A の x 座標が -2 のとき，点 C の座標を求めなさい。

(2)　(1)のとき，点 B を通り，四角形 ABCD の面積を 2 等分する直線の式を求めなさい。

(3)　四角形 ABCD が正方形となるとき，点 C の座標を求めなさい。
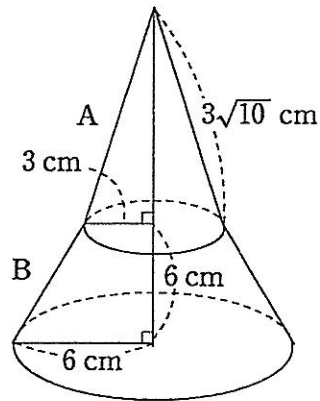
5 下の図のように，平行四辺形 ABCD の対角線の交点を O，辺 BC を 2：3 に分ける点を E，AE と BD の交点を F とします。AD＝10 cm，平行四辺形 ABCD の面積が 70 cm² のとき，次の問いに答えなさい。
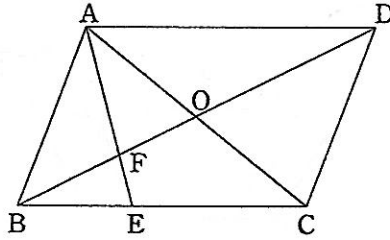
(1) BE の長さを求めなさい。

(2) △OAF の面積を求めなさい。

6 下の図のように，底面の半径が3cmで母線の長さが$3\sqrt{10}$ cmの円錐Aと，底面の半径が6cmで高さが6cmの円錐台Bを組み合わせた立体があります。このとき，次の問いに答えなさい。

(1) 円錐Aの体積を求めなさい。

(2) 組み合わせた立体の体積を求めなさい。

得　点

入学試験解答用紙　高校　【数学】（2017年2月10日実施）

1 (1) 　(2) 　(3) 　(4) 　(5)

2 (1) [式] 　(2) [式]

答 　答

3 (1) [式] 　(2) [式]

答 　答

4 (1) [式] 　(2) [式] 　(3) [式]

答 　答 　答

5 (1) [式] 　(2) [式]

答 　答

6 (1) [式] 　(2) [式]

答 　答

受験番号

得 点

[1] 1)	B	2)	C	3)	A	4)	A	5)	B

[2]	① to hear	② but	③ for	④ Though	⑤ away
	⑥ worst	⑦ be chosen	⑧ which	⑨ were	⑩ would

[3] 1)	C	2)	B	3)	C	4)	B	5)	B

[4]

1) They usually look at the person's face or clothes.

2) It found that the average woman in the U.K. has about 19 pairs of shoes.

3) The captain of the Japanese World Cup rugby team, Michael Leitch couldn't.

4) About 300 million children do not (wear shoes).

5) We [You, I] can (see them) at public places in Western countries.

[5]

1 (1) -25　(2) $\dfrac{81}{4}x^5y^5$　(3) $x(6y-1)^2$　(4) -10　(5) $x=3\pm2\sqrt{3}$

2 (1) $(100-x)\times\dfrac{10}{100}=10-0.1x$　　　　　　　　　　　答　$10-0.1x$

(2) $(10-0.1x)\times\dfrac{100-5x}{100}=4.5$

$x^2-120x+1100=0,\ (x-10)(x-110)=0,\ x=10,110$

$0<x<20$ より $x=10$　　　　　　　　　　　　　答　$x=10$

3 (1) 点 P が頂点 B にあるのは，さいころの目が 1 か 5 の 2 通りである。

よって，確率は $\dfrac{2}{6}=\dfrac{1}{3}$　　　　　　　　　　　答　$\dfrac{1}{3}$

(2) さいころを 2 回投げた後，点 P が頂点 A にあるのは次の目の出方のときである。

$(1,3),(2,2),(3,1),(2,6),(3,5),(4,4),(5,3),(6,2),(6,6)$ の 9 通りである。

よって，確率は $\dfrac{9}{36}=\dfrac{1}{4}$　　　　　　　　　　　答　$\dfrac{1}{4}$

4 (1) 点 C の x 座標は 2 なので，$y=\dfrac{1}{3}x^2$ に $x=2$ を代入

$y=\dfrac{1}{3}\times2^2=\dfrac{4}{3}$　　　　　　　　　　　答　$\left(2,\dfrac{4}{3}\right)$

(2) 四角形 ABCD の面積を 2 等分する直線は，点 $\mathrm{B}\left(-2,\dfrac{4}{3}\right)$，D$(2,4)$ を通る。

求める直線の式を $y=ax+b$ とおく。

点 $\left(-2,\dfrac{4}{3}\right)$ を通るので，$\dfrac{4}{3}=-2a+b$

点 $(2,4)$ を通るので，　　　　$4=2a+b$

解くと $a=\dfrac{2}{3},\ b=\dfrac{8}{3}$　　　　　　　答　$y=\dfrac{2}{3}x+\dfrac{8}{3}$

(3) $a^2-\dfrac{1}{3}a^2=2a,\ a(a-3)=0,\ a=0,3$

$a>0$ より $a=3$　　　　　　　　　　　答　$(3,3)$

5 (1) $10\times\dfrac{2}{5}=4$　　　　　　　　　　　答　4 cm

(2) $\mathrm{BE:AD}=2:5$ より　$\mathrm{EF:FA}=2:5$

△ABE の面積が　$70\times\dfrac{1}{2}\times\dfrac{2}{5}=14$,　　△ABF の面積が　$14\times\dfrac{5}{7}=10$

よって，△OAF の面積は，$70\times\dfrac{1}{4}-10=\dfrac{15}{2}$　　　　答　$\dfrac{15}{2}$ cm²

6 (1) 円錐 A の高さを h cm とする。

$3^2+h^2=(3\sqrt{10})^2$　　$h^2=81$　　$h>0$ より $h=9$

$3\times3\times\pi\times9\times\dfrac{1}{3}=27\pi$　　　　　　　　答　27π cm³

(2) $6\times6\times\pi\times12\times\dfrac{1}{3}\times\dfrac{7}{8}=126\pi$　　$126\pi+27\pi=153\pi$　　　　答　153π cm³