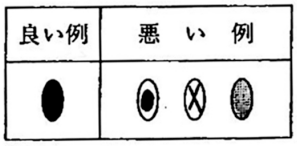
な

英　語　問　題

はじめに，これを読むこと。

1. この問題用紙は，12 ページある。ただし，ページ番号のない**白紙**はページ数に含まない。
2. 解答用紙に印刷されている受験番号が正しいかどうか，受験票と照合し，確認すること。
3. 解答用紙の所定の欄に氏名を記入すること。
4. 解答は，すべて解答用紙の所定の欄にマークするか，または所定の欄に記入すること。
5. 解答は，必ず鉛筆またはシャープペンシル(いずれも HB・黒)で記入しなさい。
6. 訂正は，消しゴムできれいに消し，消しくずを残さないこと。
7. 解答用紙は，絶対に汚したり，折り曲げたりしないこと。また所定のところ以外には，絶対に記入しないこと。
8. 問題に指定された数より多くマークしないこと。
9. **解答用紙は，持ち帰らないこと。**
10. この問題用紙は，必ず持ち帰ること。
11. この試験時間は，80 分である。
12. 解答をマークする場合の注意。

(マーク記入例)



〔Ⅰ〕 次の英文を読み，設問に答えなさい。

"It should be possible to make a precious stone that not only looks like the real thing, but that *is* the real thing," said a chemist many years ago. "The only difference should be that one crystal would be made by man, the other by nature."

At first this did not seem like a particularly hard task. Scientists began to try making synthetic(1) diamonds towards the end of the eighteenth century. It was at this time that a key scientific fact was discovered: diamonds are a form of carbon, which is a very common element. Graphite, the black mineral that is used for the "lead" in your pencil, is made of it(2), too. The only difference, we know today, is that the carbon atoms have been packed together in a slightly different way. The chemists were fired with enthusiasm: Why not change a cheap and plentiful substance, carbon, (あ) a rare and expensive one, diamond?

You have probably heard (い) the alchemists who for centuries tried to turn plain lead or iron into gold. They failed, because gold is completely different from lead or iron. Transforming carbon into diamonds, however, is not illogical at all. This change occurs in nature, so it should be possible to make it happen in the laboratory.

It should be possible, but for one hundred and fifty years every effort (う). During this period, none the less, several people believed that they had solved the diamond riddle(3). One of these was a French scientist who produced crystals that seemed to be the real thing. After the man's death, however, a curious rumor began to go the rounds(4). The story told that one of the scientist's assistants had simply put tiny pieces of genuine(5) diamonds into the carbon mixture. He was bored with the work(6), and he wanted to make the old chemist happy.

The first real success came more than sixty years later in the laboratories

of the General Electric Company. Scientists there had been (A) for a number of years on a process designed to duplicate nature's work. Far below the earth's surface, carbon is subjected to incredibly heavy pressure and extremely high temperature. Under these conditions the carbon turns into diamonds. For a long time the laboratory attempts failed, simply because no (え) machinery existed. What was needed was some sort of pressure chamber in which the carbon could be subjected to between 800,000 and 1,800,000 pounds of pressure to the square inch, at a temperature of between 1200℃ and 2400℃.

Building a pressure chamber that would not break under these conditions was a fantastically difficult feat, but eventually it was done. The scientists (7) eagerly set to work again. Imagine their disappointment when, even with this equipment, they produced all sorts of crystals, but no diamonds. They wondered if the fault lay (お) the carbon they were using, and so they tried a number of different forms.

"Every time we opened the pressure chamber we found crystals. Some of them even had the smell of diamonds," recalls one of the men who worked on the project. "But they were terribly small, and the tests we ran on them were (か)."

The scientists went on working. The idea was then (B) forward that perhaps the carbon needed to be dissolved in a melted metal. The metal might act as a catalyst, which means that it helps a chemical reaction to (C) (8) place more easily.

This time the carbon was mixed with iron before being placed in the pressure chamber. The pressure was brought up to 1,300,000 pounds to the square inch and the temperature to 1600℃. At last the chamber was opened. (9) A number of shiny crystals lay within. These crystals scratched glass, and even diamonds. Light waves passed through them in the same way as they do through diamonds. Carbon dioxide was given off when the crystals were

burned. Their density was just 3. 5 grams per cubic centimeter, as is true of diamonds. The crystals were analyzed chemically. They were finally studied under X-rays, and there was no longer room for doubt. (10) These jewels of the laboratory were not *like* diamonds; they *were* diamonds. They even had the same atomic structure. The atoms making (き) the molecule of the synthetic crystal were arranged in exactly the same pattern as they are in the natural.

"The jewels we have (D) are diamonds," says a physicist, "but they are not very beautiful. Natural diamonds range in color from white to black, with the white or blue-white favored as gems. Most of ours are on the dark side, and are quite small."

(注) pound : approximately 454 grams

問 1 空欄(あ)～(き)に入る最も適切な語を 1 つずつ選び, その番号をマークしなさい。

(あ)	1	at	2	for	3	from	4 into
(い)	1	about	2	from	3	to	4 with
(う)	1	failed	2	gained	3	reduced	4 rewarded
(え)	1	defective	2	objective	3	suitable	4 training
(お)	1	above	2	in	3	out of	4 toward
(か)	1	comfortable			2	moderate	
	3	sensitive			4	unsatisfactory	
(き)	1	away	2	off	3	out	4 up

問 2 空欄(A)～(D)には, 以下の動詞のいずれかが入る。それぞれに最も適切なものを選び, 必要な場合は文意が通るように語形を変えて解答欄に記しなさい。

bring　　make　　take　　work

問 3　二重下線部 eventually と最も意味が近い単語を 1 語，本文から抜き出し，解答欄に記しなさい。

問 4　下線部(1)～(10)について，最も適切なものを 1 つ選び，その番号をマークしなさい。

(1)　この synthetic と最も意味が近いのは

1　artistic　　2　classical　　3　man-made　　4　symbolic

(2)　この it が指しているのは

1　carbon　　2　fact　　3　lead　　4　pencil

(3)　この riddle と最も意味が近いのは

1　fiddle　　2　problem　　3　response　　4　variation

(4)　この go the rounds とは

1　fade　　2　split　　3　spread　　4　wander

(5)　この genuine と最も意味が近いのは

1　clean　　2　gorgeous　　3　polished　　4　real

(6)　この the work の内容として最も適当なものは

1　trying to turn carbon into diamonds
2　believing that he can solve the diamond riddle
3　producing fake crystals
4　putting diamonds into the carbon mixture

(7)　この feat と最も意味が近いのは

1　device　　2　promotion　　3　value　　4　venture

(8) この catalyst とは

1 貴金属　　2 触 媒　　3 電解質　　4 作用点

(9) A number of shiny crystals lay within. の within とは

1 within the chamber　　2 within light waves

3 within the pressure　　4 within the square inch

(10) there was no longer room for doubt が示す具体的な内容として最も適当なものは

1 The scientists wondered if they could have more space to keep the diamonds in the laboratory.

2 No one doubted that the crystals should not be preserved in the chamber anymore.

3 It became obvious that the crystals were diamonds.

4 It was not necessary for the author to stay in the laboratory.

問 5 以下の各群について，本文の内容と一致するものを 1 つ選び，その番号をマークしなさい。

A群

1 Eighteenth-century scientists found that diamonds were used for the lead in pencils.

2 Alchemists managed to turn iron into gold after many centuries of effort.

3 A French scientist was made to believe that he was successful in making synthetic diamonds.

4 The General Electric Company tried to simulate natural disasters in their laboratories.

B群

1 Diamonds were considered to be cheaper and more plentiful than carbon in the past.

2 Carbon can turn into diamonds through natural processes.

3 Melted metal requires dissolved carbon in order to become diamonds.

4 Carbon dioxide is reduced when diamond crystals are burned.

C群

1 Natural diamonds were synthesized in the pressure chamber.

2 Synthetic diamonds are made of iron.

3 Natural diamonds are not as beautiful as synthetic ones.

4 The density of synthetic diamonds is equal to that of natural diamonds.

◇M9(685—248)

〔Ⅱ〕 次のエノキ(a hackberry tree)に関する英文を読み，設問に答えなさい。

On a hill located in a place called Arvada, Colorado, there stands a hackberry tree. Naturally the hill is now called Hackberry Hill. However, the tree that grows there now is not the original tree.

When pioneers traveling west came to the Denver area, they saw a tree growing on a hill as they (1) toward the foothills. One of the earliest records of the sighting of the hackberry tree by white men was made by John Torrey, the naturalist with the 1843 Fremont Expedition.

Colorado plains were generally devoid of(あ) trees except for cottonwood trees growing in the stream areas, so this hackberry tree was used as a landmark for the travelers. What was also unusual about this tree was that it was a hackberry tree, whose natural territory stopped more than six hundred miles to the east, near St. Louis. The tree was fourteen inches in diameter(い) at its base(う) and was sixteen feet high. It had grown in such a manner(え) that its trunk was twisted to form a seat that travelers used to sit on to rest. The tree (2) a reddish cherry-like fruit every year as far back as it was known to the white man. How did this tree get where it was?

Some people say that this tree growing all alone on its rocky, barren(お) hill might have been planted by early explorers. Others suggest that wild birds from the Missouri River Valley may have carried the seeds. The Indians of the area had a different legend that explained how the tree got there.

Long ago, they said, a great chief killed in battle was buried on the hill. The Indians considered this place sacred.(か) Mountain and plains tribes came to the hill to worship the Great Spirit, hold ceremonies, and smoke peace pipes.

The old-time burial custom of the Plains Indians was to put the body(き) upon a platform among the boughs of a tree. This was their only means of placing the body out of (A) of wild beasts, and they had no tools with which to (3) a suitable grave. The corpse was prepared by dressing it in the

finest clothes, together with some personal possessions and ornaments, wrapped in several robes, and finally in a secure covering of animal skins. Then the whole community would break camp and depart to a distance, leaving the dead alone in an honorable solitude.

The great chief, the Indians said, was dressed in his chief's robes with his favorite war bonnet and healing objects beside him. Around his neck was his medicine bag, which held those things that were his own charms against bad luck. In the bag were hackberry seeds that were the gift of the medicine man. (B) time, one of these seeds started to grow within the breast of the chief, sending its branches to the sun and its roots to the water far below.

In 1936, the state highway department of Colorado planned a new road over Hackberry Hill where the old hackberry tree stood. The engineers (ア)[① cut down ② decided ③ have ④ the tree ⑤ to be ⑥ would]. Many people insisted that the ancient tree should be saved. After much (C), the officials finally agreed to transplant the tree. They dug a ditch around the tree leaving a large quantity (イ) of soil clinging to the roots but the day before the tree was to be removed it was mysteriously cut down.

Some people of the time had a theory that the Great Indian Father brought revenge on the white man for building a road that would destroy an Indian altar, but others were more suspicious of the telltale marks of a rusty hand-saw on the stump.

In 1974, a man named Ford Fox confessed to cutting down the hackberry tree because he thought too much fuss was being made over the old tree. Bits of the original hackberry tree remain.

In 1966 the Arvada Garden Club, a group formed in opposition to the destruction of the tree, planted a commemorative (ウ) hackberry tree in a small park donated (エ) by the Colorado Division of Highways. The sign reads "This young hackberry tree was planted here in memory of an old hackberry tree which stood on the top of this hill as a landmark for pioneers coming west. It

was the only hackberry tree anywhere around this region for 600 miles." This original tree had stood proudly atop the hill with Indians, buffalo, and a few white settlers for companions. Its replacement tree is quite (4) in a tiny roadside park beside a heavily traveled, crowded highway. What would the Great Chief have said if he knew what happened to the original tree that had grown from the hackberry seed in his medicine bag from his very own heart?

問 1 空欄(A)～(C)に入る最も適切なものを，それぞれ 1 つ選び，その番号をマークしなさい。

(A) 1 clutch 2 fetch 3 reach 4 touch

(B) 1 About 2 For a long time
3 Over 4 Running out of

(C) 1 cause and effect 2 confusion and celebration
3 discussion and argument 4 trial and error

問 2 空欄(1)～(4)には，以下の動詞のいずれかが入る。それぞれに最も適切なものを選び，必要な場合は文意が通るように語形を変えて解答欄に記しなさい。

bear dig head hide

問 3 (ア)内の①～⑥の語句を文意が通るように並べ替えて，3 番目にくる番号をマークしなさい。

問 4 下線部(あ)～(に)について，最も適切なものを 1 つ選び，その番号をマークしなさい。

(あ) この devoid of と最も意味が近いのは

1 cutting 2 finding 3 lacking 4 planting

(い) diameter とは

1 直 径　　2 半 径　　3 円 周　　4 円周率

(う) この base と同じ意味で使われている base を含むものは

1 It will take many years to establish a permanent base on the moon.

2 Mining for base metals is an expensive and dangerous business.

3 The company conducts market research to better understand its customer base.

4 The earthquake caused several large cracks to form at the base of the statue.

(え) この manner と最も意味が近いのは

1 behavior　　2 ecology　　3 etiquette　　4 fashion

(お) この barren と最も意味が近いのは

1 empty　　2 regal

3 round　　4 undisclosed

(か) この sacred と最も意味が近いのは

1 holy　　2 solemn　　3 terrifying　　4 unique

(き) この the body とは

1 the corpse　　2 the grave

3 the naturalist　　4 the trunk

(く) この quantity と最も意味が近いのは

1 amount　　2 blanket　　3 particle　　4 pillow

(け) この commemorative と最も意味が近いのは

1 beautiful　　2 commercial

3 memorial　　4 universal

(こ) この donated と最も意味が近いのは

1 constructed　　2 nurtured

3 planned　　4 presented

問 5 二重下線部 and と入れ替えても文意が変わらない単語を選び，その番号をマークしなさい。

1 anyway　　2 for　　3 so　　4 yet

問 6 以下の設問について，最も適切なものをそれぞれ 1 つ選び，その番号をマークしなさい。

(1) Why was the Hackberry Hill tree thought to be a good landmark for travelers?

1 White settlers were sure to sit in the seat formed by the tree's twisted trunk.

2 Indian chiefs placed high in the boughs of the tree were easy to spot from far away.

3 Pioneers would feel nostalgic about this particular species of tree.

4 The scarcity of variation in regional vegetation made the tree stand out.

(2) If the Indian version of the Hackberry Hill story is to be believed, what can likely be concluded from the article?

1 The Great Indian Father died after fighting in battle against the Great Spirit.

2 The hackberry seeds were considered the great chief's personal items of good fortune.

3 Digging tools were too expensive for the Indians to purchase from white travelers.

4 Being the leader of the Fremont Expedition meant that the Great Indian Father would be dressed in nice clothing upon his death.

(3) Why did Ford Fox cut down the hackberry tree?

1 He wanted to see how well his new saw would cut down such an old tree.

2 He was a state highway department engineer in charge of hackberry tree removal.

3 He could not stand people arguing over who would keep the tree's berries.

4 He believed that people should pay attention to more important things.

(4) What was the purpose of the sign placed at the site of the second hackberry tree?

1 To indicate to hungry people where hackberries may be found.

2 To provide an accurate account of the hackberry tree's existence.

3 To act as the new landmark for travelers from the east.

4 To inform travelers of the location of the new cottonwood tree.