Ⅰ．次の英文を読み、設問１～７に答えよ。

A probe from NASA designed to seek out potentially life-bearing planets around other stars was being readied for work after being launched from Cape Canaveral. It is designed to find the first Earth-size planets in habitable zones — orbiting stars at a distance where water could pool on their surface. It is not capable of detecting life itself, but it should be able to spot planets capable of bearing life. Such a discovery would be an important event which astronomers hope would show that small rocky planets such as Earth are common and would encourage other missions to study them in detail.

A professor of planetary science said Kepler was far more than just another science probe. "Kepler's mission is to find mankind's place in the universe. If we find planets with orbits similar to that of Earth then there is a chance they, too, could harbour(1) life," he said. The Kepler probe, from its position following the Earth in its orbit around the sun, is designed to spot the tiny "twinkles"(2) made by stars as their orbiting planets pass in front of them, a movement known as transiting(3).

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The mission is riddled with technical difficulties. Transits, for example, are seen only when a planet's orbit is aligned with the line of sight from Earth. The chances of any distant planet having such an alignment are less than 1%. In addition, an Earth-size planet transiting a star similar in size to the sun will cause a change in brightness of only 84 parts per million — less than 1/100th of 1%. Kepler's photometer, the light-detecting instrument at its heart, had to be among the most sensitive ever deployed to detect such tiny fluctuations.

Such methods have already helped to locate more than 300 large planets outside the solar system. Most of those are extreme places with crushing gravity resulting from their great size and roasting temperatures caused by orbiting close to their stars. Kepler will be looking for planets that are much smaller and which lie in the so-called Goldilocks zone(4), cool enough for liquid water to exist but not so cold that it freezes. "We will monitor a wide range of stars from small cool ones, where planets must circle closely to stay warm, to stars bigger and hotter than the sun, where planets must stay well clear to avoid being roasted," said the principal investigator for the mission. "If Kepler can find such planets, then the next generation of satellites can examine their atmospheres to find gases like oxygen that suggest life has emerged," said another scientist.

1．下線部（1）の意味に最も近いものを a ～ e から一つ選べ。

a．claim　　**b**．maintain　　**c**．prevent　　**d**．save　　**e**．start

2．下線部（2）の説明として**ふさわしくないもの**を a ～ e から一つ選べ。

a．changes in light output　　**b**．decreases in brightness　　**c**．flows

d．fluctuations　　**e**．winks

3．下線部（3）の意味として最もふさわしいものを a ～ e から一つ選べ。

a．The movement of orbiting stars passing in front of their planets

b．Following the tiny movement made by stars

c．The Kepler probe's movement following the Earth

d．The Earth's movement orbiting around the sun

e．The movement of orbiting planets passing in front of their stars

4．次のア）～エ）は本文中の 空所A に入る。最も適切な順序になるよう並べ替え、その組み合わせを a ～ e から一つ選べ。

ア）The camera can detect the virtually imperceptible dimming of a car headlight when a fly crosses it.

イ）Kepler will focus on one star-rich area of the sky in the constellations Cygnus and Lyra.

ウ）Over the next six years it will simultaneously measure variations in the brightness of more than 100,000 stars, searching for the tiny decreases in light output that might signify a transiting planet.

エ）An ultra-sensitive 95 megapixel camera will be used.

［注］ Cygnus and Lyra：白鳥座と琴座

a．イ－ウ－エ－ア　**b**．イ－ウ－ア－エ　**c**．ウ－イ－ア－エ

d．エ－ア－イ－ウ　**e**．エ－イ－ア－ウ

5．下線部（4）はどのようなところか。最もふさわしいものを a ～ e から一つ選べ。

a．The zone is found in cool areas between stars and their planets.

b．The zone is found in the planets which are orbiting very close to their stars.

c．In the zone, everything freezes.

d．In the zone, it is possible gases like oxygen can be found.

e．In the zone, the temperature is roasting.

6．次のア）～エ）は Kepler がいかに作動するかの説明である。最も適切な順序になるよう並べ替え、その組み合わせを a ～ e から一つ選べ。

ア）Kepler measures those tiny changes in light.

イ）Most stars emit very constant light levels.

ウ）The probe also detects how far a planet lies from its star, showing how hot it is.

エ）When an orbiting planet passes in front of a star the light level dips.

a．ア－ウ－エ－イ　**b**．イ－エ－ア－ウ　**c**．ウ－イ－エ－ア

d．エ－ア－イ－ウ　**e**．エ－ウ－イ－ア

7．本文の内容と合致するものを a ～ h から二つ選べ。

a．It is well known that small rocky planets are commonly found in the universe.

b．Kepler can only find possible life-bearing planets, but not any actual evidence which suggests life.

c．Kepler has already been launched and is ready to start work.

d．Kepler is capable of detecting a tiny fluctuation such as a change in brightness less than 0.001%.

e．Kepler is similar to other science probes in that it is capable of detecting life.

f．Kepler resembles other science probes in that it can spot planets capable of bearing life.

g．Most of the large planets so far found are located in the so-called Goldilocks zone.

h．When stars are bigger and hotter, their planets must orbit closer to stay warm.