

奈良県立医科大学 前期

平成 29 年 度

試 験 問 題 ②

学 科 試 験

(9 時 ~ 12 時)

【注 意】

1. 試験開始の合図があるまで、この問題冊子の中をみてはならない。
2. 試験教科，試験科目，ページ，解答用紙および選択方法は下表のとおりである。

教 科	科 目	ペー ジ	解 答 用 紙 数	選 択 方 法
数 学	数 学	1 ~ 12	2 枚	数学，英語は必須解答とする。 理科は左の3科目のうちから1科目を選択せよ。
英 語	英 語	13 ~ 16	2 枚	
理 科	化 学	17 ~ 30	2 枚	
	生 物	31 ~ 48	6 枚	
	物 理	49 ~ 58	1 枚	

3. 監督者の指示に従って、選択しない理科科目を含む全解答用紙(13枚)に受験番号と選択科目(理科のみ)を記入せよ。
 - ① 受験番号欄に受験番号を記入せよ。
 - ② 理科は選択科目記入欄に選択する1科目を○印で示せ。

上記①，②の記入がないもの，および理科2科目または理科3科目選択した場合は答案全部を無効とする。
4. 解答はすべて解答用紙の対応する場所に記入せよ。
5. 問題冊子の余白を使って，計算等を行ってもよい。
6. 試験開始後，問題冊子の印刷不鮮明，ページの落丁・乱丁および解答用紙の汚れ等に気づいた場合は，手を挙げて監督者に知らせよ。
7. 解答用紙はいずれのページも切り離してはならない。
8. 解答用紙は持ち帰ってはならない。問題冊子は持ち帰ってよい。

英 語

I. 次の英文を読んで、設問に答えよ。（*印の語には注がある。）(120点)

Some reef*-dwelling fish are twice as likely to get eaten up by predators* in the presence of a noisy motorboat, according to a recently released study. The research, published in Nature Communications, adds to a growing body of evidence that noise pollution — on land and in the water — is a serious problem for wildlife*.

Many mammals*, birds and other animals use sound to locate food, avoid predators, navigate their environment, and even select a mate. However, all of (1)these life-essential functions can be disrupted by noise from ships and sonar probes* in the sea, motor vehicles and industry on land, or airplanes.

Sometimes the results are deadly. The new study shows that when damselfish — a family of several hundred species found mostly in the tropics — become stressed by a motorboat overhead, their ability to avoid predators is (2)compromised. The likely hunter in this case is the dusky dottyback, which likes to snack on young damselfish that have recently moved to reefs from the open sea, where they hatch.

Scientists led by Stephen Simpson of the University of Exeter conducted experiments in the laboratory and in the wild. Whether the noise came from a recording or a real boat, the outcome was the same. The confused damselfish were six times less likely to dart away from an attack, and more than twice as likely to end up as some other fish's meal, the study found.

"The combination of stress and poor responses to strikes by predators is why these fish become such easy prey," said Andy Radford, a co-author of the study and a researcher at the University of Bristol. Scientists observed that (3)the confused fish consumed 20 to 30 percent more oxygen, a sure sign of distress.

Noise pollution in the ocean often occurs in areas densely populated with marine life. Shallow water coral reefs, for example, cover far less than one percent of the ocean floor, but harbor more than a quarter of its (4)biodiversity.

Unfortunately for many of these marine animals, humans also intensively exploit

coral ecosystems, which means lots of motorboats. Some 500,000 will move back and forwards across the waters above Australia's Great Barrier Reef by 2040, according to a government report. (5)Increasing the impact, sound travels five times faster in water than in air, and — due to water's density — over far greater distances as well. Damselfish, a common sight in saltwater aquariums*, are not the only aquatic* victims of human-induced sound. Recent research has shown that pile-driving*, seismic* surveys and especially heavy traffic along coastal shipping lanes used by migrating whales have affected the giant sea mammals' ability to feed and communicate.

(6)その報告はまた、関連性が実験的に証明されているわけではないけれども、海軍のソナーが、その騒音によって方向感覚を失い海岸に乗り上げるアカボウクジラ (beaked whales) の死因となっている可能性を指摘した。

注

reef* 岩礁

predators* 捕食動物

wildlife* 野生生物

mammals* 哺乳類

sonar probes* ソナー (水中音波探知機)

aquariums* 水族館, 水生生物飼育槽

aquatic* 水生の

pile-driving* 杭打ち (工事)

seismic* 地震の, 震源の

設問

1. 下線部 (1) の指す内容を具体的に日本語で記せ.
2. 下線部 (2) の “compromised” と最も近い意味となる語を次の (a)～(c) の選択肢から選び, 記号で答えよ.
(a) discredited
(b) intensified
(c) impaired
3. 下線部 (3) の意味をわかりやすい日本語で記せ.
4. 下線部 (4) の “biodiversity” と内容的に最も近い意味を持つ表現を, この段落から英語で抜き出せ.
5. 下線部 (5) を和訳せよ.
6. 下線部 (6) を英訳せよ.

- II. Write 100 to 200 words in English about your high school (or junior high school). Explain both its good and bad points. This task will be marked on both content and English ability. (30 点)

[下書き用紙]