

Instructions

Read the following passage and answer the questions that follow.

Like Galileo, Newton (1)stressed the importance of comparing theories and models with experiments and observations of the real world, and always (a) relevant experiments himself, (b) possible, to test his ideas. This is so deeply (2)ingrained (c) part of the scientific method today that it may seem obvious, even to non-scientists, and it is hard to appreciate the extent to which, even into the seventeenth century, many philosophers would speculate about the nature of the physical world in an abstract way, without ever getting their hands dirty in experiments. The classic example [whether / about / is / the argument] two different weights dropped from the same height at the same time would hit the ground together.

*ingrained「深く根付いた」

Questions

Q1. Vocabulary(6 points)

Choose the word that is closest in meaning to the boldfaced word.

(1) stressed

- ① ignored ② emphasized ③ doubted ④ discovered

(2) relevant

- ① recent ② formal ③ related ④ accidental

(3) ingrained

- ① temporary ② unclear ③ deeply fixed ④ newly learned

Q2. Fill-in-the-Blanks(6 points)

Choose the most appropriate word for each blank (a)-(c).

Choose from the options ①-⑤. Do not use the same word more than once.

- ① whenever ② carried out ③ that ④ as ⑤ which

Q3. Word Order(6 points)

Rearrange the words in brackets to complete the sentence.

The classic example [whether / about / is / the argument] two different weights ...

Q4. Grammar / Usage(6 points)

Choose the sentence in which that is used as an adverbial clause marker in the pattern so / such ~ that.

- ① Newton stressed that experiments are essential to science.
- ② The question that philosophers debated was about falling objects.
- ③ This method is so deeply ingrained today that it may seem obvious to non-scientists.
- ④ Many philosophers discussed that the physical world could be understood in an abstract way.

Q5. Translation(20 points)

Translate the underlined part into natural Japanese.

Q6. Reading Comprehension(12 points)

Choose the most appropriate answer to each question.

(1) What did Newton emphasize as important for science?

- ① Creating theories without experiments
- ② Comparing theories with experiments and real-world observations
- ③ Avoiding experiments to stay objective
- ④ Depending only on abstract reasoning

(2) What does the author say was common even into the seventeenth century?

- ① Philosophers regularly conducted experiments.
- ② Many philosophers speculated without doing experiments.
- ③ Experiments were already standard scientific practice.
- ④ Philosophers rejected abstract thinking.

(3) What is given as the classic example?

- ① A debate about planets
- ② A debate about whether two weights fall together
- ③ A debate about scientific method
- ④ A debate about laboratory tools

 Answer Sheet

Name: _____ Class: _____ No.: _____

◆ Q1. Vocabulary

(1) _____ (2) _____ (3) _____

◆ Q2. Fill-in-the-Blanks

(a) _____ (b) _____ (c) _____

◆ Q3. Word Order

◆ Q4. Grammar / Usage

Answer (①-④): _____

◆ Q5. Translation

◆ Q6. Reading Comprehension

(1) _____ (2) _____ (3) _____

【Total Score: /50】

✓ [Answer & Explanation]
Science, Experiment, and
Abstract Speculation (Total: 50
点)

✓ Q1. Vocabulary (6 points)
Answers

(1) ② (2) ③ (3) ③

[Explanation]

Q1. Vocabulary (各 2 点 × 3 問 =
6 点)

(1) stressed

✓ 正解: ② emphasized (強調した)

- ① ignored (無視した)
- ③ doubted (疑った)
- ④ discovered (発見した)

→ stress は「重要性を強調する」。本
文では、理論を実験・観察と比較するこ
との重要性を 強調した という意味。

(2) relevant

✓ 正解: ③ related (関連した)

- ① recent (最近の)
- ② formal (形式的な)
- ④ accidental (偶然の)

→ relevant experiments は「自分
の考えを検証する目的に 関連した実
験」。

(3) ingrained

✓ 正解: ③ deeply fixed (深く根付
いた)

- ① temporary (一時的な)
- ② unclear (不明確な)
- ④ newly learned (新しく学んだ)

→ be ingrained as part of ~ は
「~の一部として深く定着している」とい

う定型表現。

✓ Q2. Fill-in-the-Blanks (6
points)

Answers

(a) ② (b) ① (c) ③

[Explanation]

(a) carried out

→ carry out experiments は「実験
を実施する」という定型表現。

carry experiments の形は不可。

(b) whenever

→ whenever possible = 「可能な限
りいつでも」。

「できるときは必ず自分で実験した」とい
う Newton の姿勢を表す。

(c) that

→ so deeply ingrained that SV
の形で、「非常に深く根付いている ので
~」という 結果 を表す。

この that は結果を導く接続語。

✓ Q3. Word Order (6 points)

Answer

is the argument about whether

[Explanation]

文全体は

The classic example is the
argument about whether two
different weights ...

• is: SVC 構文の be 動詞

• the argument: 補語

• about whether ~: argument の
内容を示す前置詞句 + 名詞節

→ 4 語は is / the argument / about / whether の順で確定。

✓ Q4. Grammar / Usage (6 points)

Answer

③

[Explanation]

③ This method is so deeply ingrained today that it may seem obvious ...

→ so ~ that SV は「とても～なので SV」という結果を表す副詞節。

✗ 他の選択肢

① stressed that SV:名詞節 that (内容)

② the question that SV:関係代名詞 that

④ discussed that SV: discuss that SV は不可 (discuss は discuss + 名詞)

✓ Q5. Translation (20 points)

(解答例)

17世紀に入ってからなお、多くの哲学者が、実験で実際に手を汚すことなど一度もせずに、物理的世界の本質について抽象的な仕方で思索していたという事実が、どの程度まで及んでいたのかを理解するのは難しい。

[Explanation]

文の骨格:

• it is hard to appreciate ~

→ it は形式主語、to appreciate ~

が真主語。

• the extent to which ~

→ 「～がどの程度まで及んでいたか」。

extent(程度)を to which 節が説明。

• even into the seventeenth century

→ 「17世紀に入ってからなお」。時代の長さを強調。

• without ever getting their hands dirty in experiments

→ 比喩表現。「実験で手を汚す」=「実際に実験を行う」。

without ever により「一度も～せずに」という強い否定。

✓ Q6. Reading Comprehension (12 points)

Answers

(1) ② (2) ② (3) ②

[Explanation]

Q6. Reading Comprehension (各4点 × 3問 = 12点)

(1) 正解: ②

Comparing theories with experiments and real-world observations

根拠: 第1文

comparing theories and models with experiments and observations of the real world

→ Newton が理論と実験・観察の照合を重視したことが明示されている。

誤答の根拠

① 実験なしとは逆。

③ 観察を避けるとは書かれていない。

④ 抽象思考のみとは本文と反対。

(2) 正解:②

Many philosophers speculated
without doing experiments.

根拠:下線部

without ever getting their hands
dirty in experiments

→ 実験をせず、抽象的思索に頼っていたことが「17世紀に入ってからも」続いた。

(3) 正解:②

A debate about whether two
weights fall together

根拠:最終文

the argument about whether
two different weights ... would
hit the ground together

→ 同時落下をめぐる議論が classic example として挙げられている。