Quiz 1

* Required

1. Email address *

_____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

_____

3. What is your student ID number? (e.g. 0500309999) *

_____

> Write down the word in English that BEST describe the following statements.

4. 1. Listen and answer.   1 point

_____

5. 2. Listen and answer.   1 point

_____

6. 3. The number above the line in a fraction.   1 point

_____

7. 4. The number below the line in a fraction.   1 point

_____

8. 5. A number that can be written as 2n, where n is an integer.   1 point

_____

9.   6. A number that can be written as 2n+1, where n is an integer.   1 point

_____

10.   7. An element whose atom consists of one proton and one electron.   1 point

_____

11.   8. We learn Maxwell's equations in the electricity and ( ) class.   1 point

_____

12.   9. The fundamental physical theory developed in the 1920s as a replacement of   1 point
       classical mechanics.

_____

13.   10. I am an ( ) student studying physics. *   1 point

_____

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Quiz 2 (May 12, 2020)

* Required

1. Email address *

    _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

    _____

3. What is your student ID number? (e.g. 0500309999) *

    _____

> Write down the words in English that BEST describe or complete the following statements.

4. 1. Listen and answer. *   1 point

    Mark only one oval.

    ( ) 4 pi D squared

    ( ) pi D squared

    ( ) (4/3) pi D cubed

    ( ) (1/6) pi D cubed

    ( ) Other: _____

5. 2. Listen and answer. *   1 point

    Mark only one oval.

    ( ) equilateral triangle

    ( ) isosclace triangle

    ( ) isosclece traiangle

    ( ) right triangle

    ( ) Other: _____

6. 3-4. A (a) number consists of a real part and an (b) part. [Answer as a, b.] *   2 points

    _____

7. 5-7. In a (a) coordinate system, a position is specified by distance r, (b) angle theta   3 points
    from the z-axis, and (c) angle phi. [Answer as a, b, c] *

    _____

8. 8-9. A proton is heavier than an electron by three (a) of (b). [Answer as a, b] *   2 points

    _____

9. 10. A trapezoid has a pair of opposite sides (a). *   1 point

    _____

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Quiz 3 (May 19, 2020)

* Required

1. Email address *

   _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

   _____

3. What is your student ID number? (e.g. 0500309999) *

   _____

> Write down or choose the words in English that BEST describe or complete the following statements.

4. 1. The equation divB* = 0 is one of (1) equations. *: vector capital B *   1 point

   Mark only one oval.

   ⬭ the Maxwell's

   ⬭ Maxwell's

   ⬭ Maxwell

5. 2. This solution has the peculiar (2) of being invariant under the   1 point
   interchange of x and y. *

   Mark only one oval.

   ⬭ property

   ⬭ properties

6.　　3. Write down the plural form (複数形) of the following word: parenthesis. *　　1 point

_____

7.　　4. Write down the plural form (複数形) of the following word: hypothesis. *　　1 point

_____

8.　　5. Write down the singular form (単数形) of the following word: media. *　　1 point

_____

9.　　6. Write down the singular form (単数形) of the following word: supernovae. 1 point
　　*

_____

10.　　7. Write down the plural form (複数形) of the following words: formula. *　　1 point

_____

11.　　8. Write down the plural form (複数形) of the following words: percent *　　1 point

_____

12.　　9-10. A (9) in thermal equilibrium (that is, at a constant temperature)　　2 points
　　emits electromagnetic radiation called (10) radiation. *

Mark only one oval.

◯　black body, black body

◯　black-body, black body

◯　black body, black-body

◯　black-body, black-body

Quiz 4 (May 26, 2020)

* Required

1.   Email address *

2.   What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

3.   What is your student ID number? (e.g. 0500309999) *

Write down or choose the words in English that BEST describe or complete the following statements.

4.   1. (Listen and answer.) *   1 point

5.   2. (Listen ans answer.) *   1 point

6.   3. Two equal capacitors connected in (3) give the total capacitance that is   1 point
     a half of each capacitance. *

7. 4-5. The change in direction of a wave when it enters another medium is (2 points
   4), whereas the change in direction of a wave around an obstacle is (5).
   *Answer as "xxx, yyy". *

   _____

8. 6. Newton's second law states that the (6) of a body is given by the force   1 point
   divided by the mass. *

   _____

   Complete the following sentences to show how to read these equations.

9. 7-8. The curl of the vector capital E equals minus the (7) derivative of the   2 points
   vector capital B (8-1) (8-2) to t. *Answer as "xxx, yyy, zzz" *

   $$\nabla \times E = -\frac{\partial B}{\partial t}$$

   _____

10. 9-10. The natural logarithm of n (9) is (10) equal to n log n minus n. *   2 points

    $$\ln(n!) \approx n \ln(n) - n$$

    _____

Quiz 5 (June 2, 2020)

* Required

1. Email address *

    _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

    _____

3. What is your student ID number? (e.g. 0500309999) *

    _____

Write down the words in English that BEST describe or complete the following
statements.

4. 1. (Listen and answer.) *   1 point

    _____

5. 2. (Listen ans answer.) *   1 point

    _____

6. 3-4. Heisenberg's (3) (4) states that the more precisely the position of   2 points
    some particle is determined, the less precisely its momentum can be
    predicted. *Answer as "xxx, yyy". *

    _____

7. 5. Entropy remains constant in an (5) process which is also reversible. * 1 point

---

Complete the following sentences with the most appropriate words.

8. 6. Let us (6) the origin of the universe. * 1 point

Check all that apply.

☐ discuss about

☐ at first discuss about

☐ discuss in detail

☐ discuss in

☐ discuss

9. 7. The splitting of the spectral peaks (7) the Zeeman effect. * 1 point

Check all that apply.

☐ are originated from

☐ is originated from

☐ originate from

☐ originates from

☐ is originating in

10. 8. A large number of muons entering the target (8) successfully captured. 1 point
    *

Check all that apply.

☐ was

☐ were

☐ being

☐ can

11. 9. 受動態にせよ。 A modern digital voltmeter can detect even a nano-volt 2 points
    signal. *

Quiz 6 (June 9, 2020)

* Required

1. Email address *

    _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

    _____

3. What is your student ID number? (e.g. 0500309999) *

    _____

Write down the words in English that BEST describe or complete the following statements.

4. 1. LED stands for a (1a) - (1b) (1c). *Answer as "xxx, yyy, zzz". *   1 point

    _____

5. 2. The nuclear reaction taking place in the sun is nuclear (2). *   1 point

    _____

6. 3-4. In (3a) (3b) they discovered a particle with a mass similar (4) that   2 points
    predicted by Yukawa. *Answer as "xxx, yyy, zzz". *

    _____

7. 5. Gravitational waves were predicted by Einstein's theory of (5a) (5b).   1 point
    *Answer as "xxx, yyy". *

    _____

Complete the following sentences with the most appropriate word or words in each pair of the parentheses.

8.   6-7. The specific heat of an (6) at low temperature is (7) the cube of   2 points
      temperature. *Answer with a comma in between. 絶縁体、比例する *

_____

9.   8-9. The mass of a proton is larger than that of an electron (8) three (9a)   2 points
      of (9b). *Answeer as "xxx, yyy, zzz". ３桁大きい *

_____

10. 10. An electron and a positron have negative and positive charges(10). そ   1 point
      れぞれ *

_____

Quiz 7 (June 16, 2020)

* Required

1.   Email address *

      _____

2.   What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

      _____

3.   What is your student ID number? (e.g. 0500309999) *

      _____

Listen and answer.

4.   1. Write down the element symbols. *Answer as "XX, YY". *   1 point

      _____

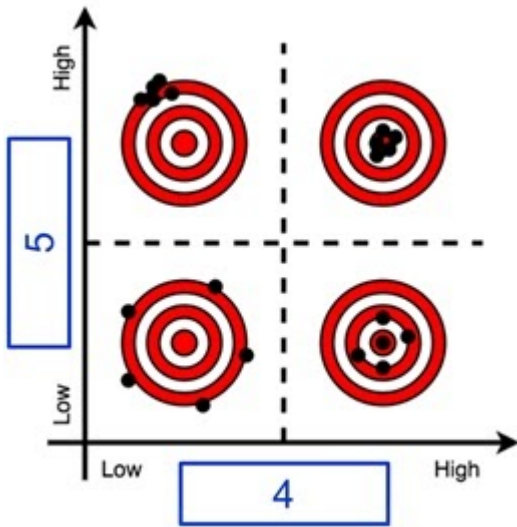5.   2. Write down the element symbols. *Answer as "XX, YY". *   1 point

      _____

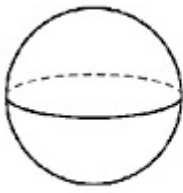6.   3. Spell out the following element names. *Answer as "xxxx, xxxx". *   1 point

      _____

Answer with the most appropriate words in English.

7. 4-5. Fill in the boxes 4 and 5 with the most appropriate words. **Answer to   2 points
    4 and 5 as "xxxx, yyyy" in this order. (from Eigopedia) *

8. 6-7. Give the names of the following figures in English. *Answer as "xxxx,   2 points
    yyyy". *

Answer with the most appropriate forms of the verbs.

9. 8. We must avoid (8) these two chemicals. *   1 point

    Mark only one oval.

    ⬭ mixing

    ⬭ to mix

    ⬭ mix

    ⬭ having mixed

10.   9. (9) the atomic shell structure last week, I will now explain the nuclear   1 point
shell structure. *

Mark only one oval.

◯ Discussed

◯ Having discussed

◯ Discussing

◯ To discuss

11.   10. (10) with the classical treatment, the correct result gives a value   1 point
smaller by a factor of two. *

Mark only one oval.

◯ Compared

◯ Having compared

◯ Comparing

◯ In order to compare

◯ Other: _____

12.   11. The (11) question is how we can reach the quantum limit for this   1 point
detection. *

Mark only one oval.

◯ remained

◯ remaining

◯ Other: _____

Quiz 8 (June 30, 2020)

* Required

1. Email address *

    _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

    _____

3. What is your student ID number? (e.g. 0500309999) *

    _____

Listen and answer in English.

4. 1. Listen and answer. *   1 point

    _____

5. 2. Listen and answer. *   1 point

    _____

Answer with the most appropriate words in English.

6. 3. What does NMR stand for? (省略前の言葉は？) *   1 point

    _____

7. 4. What is the name of the following function in statistical physics? * 1 point

    $$Z = \sum_{n=0}^{\infty} e^{-E_n/k_{\mathrm{B}}T}$$

    _____

Fill in the most appropriate prepositions in the parentheses.

8. 5. The long life time of the muon is attributed (5) the relativistic effect. *   1 point

    _____

9.   6. The size of a nucleus is (6-1) the order (6-2) 10^-15 m. *Answer as xxx, yyy. *   1 point

_____

10.   7. The instrumental noise is expressed (7-1) terms (7-2) equivalent gravitational-wave strain   1 point
        amplitude. *Answer as xxx, yyy. *

_____

11.   8. The specific heat divided (8-1) temperature is plotted (8-2) the temperature squared in Fig.   1 point
        1. *Answer as xxx, yyy. *

_____

12.   9. He deduced the properties of these particles (9-1) the characteristics (9-2) nuclear forces.   1 point
        *Answer as xxx, yyy. *

_____

13.   10. The difference (10-1) the masses (10-2) a neutron and a proton is greater than that (10-3) an
        electron. *Answer as xxx, yyy, zzz. *
                                                                                                         1 point

_____

Quiz 9 (July 7, 2020)

* Required

1. Email address *

   _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

   _____

3. What is your student ID number? (e.g. 0500309999) *

   _____

Complete the following sentences on nuclear reactors with the most appropriate words.

4. 1. The (1a) inside the (1b) rod undergoes nuclear (1c). *Answer as xxx, yyy, zzz. *   2 points

   _____

5. 2. Fukushima Daiichi Nuclear Power Plant uses (2a) water (2b), whereas the nuclear power plants in   2 points
   Fukui mainly use (2c) water (same as 2b). *Use plural forms if needed. Answer as xxx, yyy, zzz. *

   _____

Fill in the most appropriate articles in the parentheses, a (A), an (An), the (The), or phi (for no article).

6. 3. (3a) quantity h-bar has (3b) interesting interpretation. *Answer as xx, yy. *   1 point

   _____

7. 4. In Fig. 1, we plot all (4a) data obtained in this experiment with (4b) open circles. *Answer as xx, yy. *

   1 point

   _____

8. 5. (5a) phenomenon of superconductivity is (5b) remarkable example of (5c) quantum effects   2 points
   operating on (5d) truly macroscopic scale. *Answer as ww, xx, yy, zz. *

   _____

9. 6. (6a) area A of (6b) circle of (6c) radius R is given by (6d) following formula: A = pi R^2. *Answer   2 points
   as ww, xx, yy, zz. *

   _____

Quiz 10 (July 14, 2020)

* Required

1. Email address *

   _____

2. What is your name? (FAMILY, Given) (e.g. SUZUKI, Ichiro) *

   _____

3. What is your student ID number? (e.g. 0500309999) *

   _____

Complete the following sentences with the most appropriate words.

4. 1. In a (1-1) coordinate system, a position is specified by distance r, (1-2) angle   2 points
   theta from the z-axis, and (1-3) angle phi. *Answer as xxx, yyy, zzz. *

   _____

5. 2. The (2-1) (2-2) is often expressed by the relation $\Delta x \cdot \Delta p \sim$ h-bar. *Answer as   1 point
   xxx, yyy. *

   _____

6. 3. Two equal resistors connected in (3) give the total resistance that is a half of   1 point
   each resistance. *

   _____

7. 4. The threshold of hearing corresponds to air vibrations of an (4-1) of (4-2)   1 point
   smaller than an atomic diameter. *Answer as xxx, yyy *

   _____

Fill in the parentheses with the most appropriate relative pronouns, by adding commas or prepositions if necessary.

最適な関係代名詞を（必要ならカンマや前置詞も加えて）書け。 *whereは関係副詞（関係代名詞ではない）。

8. 6. Since electrons (6) conduct electricity, have a spin of ±½, they are not subject to Bose–Einstein condensation. *   1 point

"Q5" was missing.

9. 7. It appears to be one of the few places in physics (7-1) there is a rule (7-2) can be stated very simply, but (7-3) no one has found a simple and easy explanation. *   2 points

Insert a colon (:) or a semicolon (;) to complete each sentence.

10. 8. The answer is a result of two effects (8-1) first, the exclusion principle (8-2) and second, the spin-direction dependence of the nuclear force. *Answer as X, Y. *   1 point

11. 9.-1. There were two difficulties in the measurements (9-1) we managed to solve both of them. 9-2. There were two difficulties in the measurements (9-2) the precision of the frequency and the stability of the temperature. *Ans er as X, Y. *   1 point

12. 10. There are two main categories of identical particles (10-1) fermions and bosons. Fermions have intrinsic half-integer spins (10-2) no two fermions can occupy the same quantum state. *Answer as X, Y. *   1 point

Google Forms

Quiz 1

Q1: "The mathematical operation represented by a minus (−) symbol" → subtraction (Subtraction)

Q2: "A charge-neutral nucleon" → neutron (Neutron)

Q3: numerator (Numerator)

Q4: denominator (Denominator)

Q5: even number (an even number, Even number)

Q6: odd number (an odd number, Odd number)

Q7: hydrogen (Hydrogen)

Q8: magnetism

Q9: quantum theory (Quantum theory)

Q10: undergraduate

Quiz 2

Q1: πD^2

Q2: right triangle

Q3-4: complex, imaginary

Q5-7: spherical, polar, azimuthal

Q8-9: orders, magnitude

Q10: parallel

Quiz 3

Q1: Maxwell's

Q2: property

Q3: parentheses

Q4: hypotheses

Q5: medium

Q6: supernova

Q7: formulae

Q8: percent

Q9-10: black body, black-body

Quiz 4

Q1: "The energy associated with motion." kinetic energy

Q2: "The force between positive and negative charges is *attractive*. How about the force between two positive charges?" repulsive (Repulsive, repulsive force, Repulsive force)

Q3: series

Q4-5: refraction, diffraction

Q6: acceleration

Q7-8: partial, with, respect

Q9-10: factorial, approximately (nearly, roughly, etc.)

Quiz 5

Q1: "A situation in which two or more distinct states have the same energy."

  → degeneracy (degenerate)

Q2: "The condition of a system in which all competing influences are balanced, either mechanically or thermally."

  → equilibrium

Q3-4: uncertainty, principle

Q5: adiabatic

Q6: discuss in detail, discuss

Q7: originates from

Q8: were

Q9: Even a nano-volt signal can be detected with a modern digital voltmeter.

Quiz 6

Q1   light, emitting, diode

Q2   fusion

Q3-4   cosmic, rays, to

Q5   general, relativity

Q6-7   insulator, proportional to

Q8-9   by, orders, magnitude

Q10   , respectively (カンマ必要)

Quiz 7

Q1: "germanium, uranium" →Ge, U

Q2: "sodium, xenon" →Na, Xe

Q3: neodymium, potassium [Nd, K]

Q4-5: accuracy, precision (Accuracy, Precision)

Q6-7: sphere, isosceles triangle

Q8: mixing

Q9: Having discussed

Q10: Compared

Q11: remaining

Quiz 8

Q1: "What is the reaction in which a heavy nucleus splits into two or more fragments of comparable size?" → nuclear fission (fission, Nuclear fission, Fission)

Q2: "What are a class of materials whose electrical resistance disappear completely below certain temperatures?" →

   superconductors (Superconductors)　単数形は 0.5 点

Q3: nuclear magnetic resonance (Nuclear Magnetic Resonance, nuclear magnetic resonance)

Q4: partition function (a partition function, Partition function)

Q5: to

Q6: on, of

Q7: in, of

Q8: by, against

Q9: from, of

Q10: in, between, of

 (本文 than that of の that が抜けていたので、"of"は全員 1 点、in, between でさらに 1 点)

Quiz 9

Q1: uranium, fuel, fission

Q2: boiling, reactors, pressurized

Q3: The, an

Q4: the, phi

Q5: The, a, the, a

Q6: The, a, phi, the

Quiz 10

Q1: spherical, polar, azimuthal

Q2: uncertainty, principle

Q3: parallel

Q4: order, magnitude

(Q5 missing.)

Q6: , which

Q7: in which, that, for which

Q8: :, ;

Q9: :, ;

Q10: :, ;