

CSCA Sample Mock Paper

CSCA 2026 — All Subjects Sample

Instructions

- This is an original sample mock paper for preview and practice only. It is not an official CSCA paper.
- **PLEASE NOTE:** The real CSCA exam is monolingual: each candidate takes one version, Chinese or English. This sample paper is intentionally bilingual so learners can compare both versions side by side and build second-language vocabulary. Difficulty and structure mirror the real paper.
- Choose the best answer for each multiple-choice question. Mark A, B, C, or D on your answer sheet.
- Use standard constants where needed, for example $g = 10 \text{ m/s}^2$, unless stated otherwise.
- For the Chinese sections, read the passage first. Technical vocabulary is given with pinyin and English glosses.
- Calculators are not required. The problems are designed to test concept recognition, simple calculation, and careful reading.
- Do not copy official papers. This document contains fresh questions inspired by the syllabus level and paper structure.

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Sample contents

Mathematics · Physics · Chemistry · STEM Chinese · Humanities Chinese · Answer Key

Section A — Mathematics 数学

1. 已知 $A = \{x \mid x \text{ 为整数且 } -1 \leq x < 4\}$ 。下列哪一项正确?

Let $A = \{x \mid x \text{ is an integer and } -1 \leq x < 4\}$. Which statement is correct?

- (A) $4 \in A$ (C) $-2 \in A$
 (B) $\{0\} \subset A$ (D) $\emptyset \in A$

2. 若 $f(x) = 2x - 5$, 且 $g(x) = x^2 + 5$, 求 $f^{-1}(g(2))$ 。

For $f(x) = 2x - 5$, find $f^{-1}(g(2))$ if $g(x) = x^2 + 5$.

- (A) 2 (C) 9
 (B) 7 (D) 14

3. 袋中有 3 个红球、2 个蓝球和 5 个绿球。不放回取出两个球, 两个都不是绿球的概率是多少?

A bag contains 3 red, 2 blue, and 5 green balls. Two balls are drawn without replacement. What is the probability both are not green?

- (A) $\frac{2}{9}$ (C) $\frac{5}{18}$
 (B) $\frac{1}{4}$ (D) $\frac{1}{2}$

4. 解不等式 $3x - 4 \leq 11$ 。

Solve the inequality $3x - 4 \leq 11$.

- (A) $x \leq 5$ (C) $x < 5$
 (B) $x \geq 5$ (D) $x \leq -5$

5. 若 $g(x) = x^2 - 4x + 3$, 有多少个整数 x 满足 $g(x) \leq 0$?

For $g(x) = x^2 - 4x + 3$, how many real values of x satisfy $g(x) \leq 0$ and x is an integer?

- (A) 1 (C) 3
 (B) 2 (D) 4

6. 过点 $(1, 2)$ 和 $(3, 8)$ 的直线与 y 轴交于 b 。求 b 。

The line through $(1, 2)$ and $(3, 8)$ meets the y -axis at b . What is b ?

- (A) -1 (C) 1
 (B) 0 (D) 3

7. 若 $2^x = 16$, 则 x 的值为

For $2^x = 16$, the value of x is

- (A) 2 (C) 4
 (B) 3 (D) 8

8. 计算 $\log_{10}(1000) - \log_{10}(10)$ 。

Evaluate $\log_{10}(1000) - \log_{10}(10)$.

- (A) 1 (C) 3
 (B) 2 (D) 100

9. 若锐角 θ 满足 $\sin \theta = \frac{3}{5}$, 则 $\sin(2\theta)$ 是多少?

For acute θ , $\sin \theta = \frac{3}{5}$. What is $\sin(2\theta)$?

- (A) $\frac{7}{25}$ (C) $\frac{24}{25}$
 (B) $\frac{12}{25}$ (D) $\frac{6}{5}$

10. 圆的半径为 7 cm。取 $\pi = \frac{22}{7}$, 其面积为

A circle has radius 7 cm. Using $\pi = \frac{22}{7}$, its area is

- (A) 44 cm^2 (C) 154 cm^2
 (B) 49 cm^2 (D) 308 cm^2

11. 一个长方体体积为 120 cm^3 ，底面为 $4 \text{ cm} \times 5 \text{ cm}$ 。高是多少？
 A cuboid has volume 120 cm^3 and base $4 \text{ cm} \times 5 \text{ cm}$. What is its height?

- (A) 4 cm (C) 6 cm
 (B) 5 cm (D) 20 cm

12. 等差数列 $5, 8, 11, \dots$ 中第一个大于 30 的项是
 The arithmetic sequence $5, 8, 11, \dots$ has first term above 30 equal to

- (A) 29 (C) 35
 (B) 32 (D) 38

13. 某等比数列满足 $a_2 = 6$, $a_5 = 48$ 。若公比为正，求 a_1 。
 A geometric sequence has $a_2 = 6$ and $a_5 = 48$. If the common ratio is positive, what is a_1 ?

- (A) 2 (C) 4
 (B) 3 (D) 6

14. 抛掷两枚均匀硬币。已知至少出现一次正面，恰好出现一次正面的概率是多少？
 Two fair coins are tossed. Given that at least one coin shows heads, what is the probability of getting exactly one head?

- (A) $\frac{1}{3}$ (C) $\frac{2}{3}$
 (B) $\frac{1}{2}$ (D) $\frac{3}{4}$

15. 数据 $2, 4, 4, 7, 8$ 的中位数为
 The data $2, 4, 4, 7, 8$ have median

- (A) 4 (C) 7
 (B) 5 (D) 8

16. $6, 8, 10, x$ 的平均数为 9。若把 x 再加入原数据一次，新的平均数是多少？
 The mean of $6, 8, 10, x$ is 9. If x is added to the original list again, what is the new mean?

- (A) 9 (C) 10
 (B) 9.6 (D) 12

17. 若 $\vec{a} = (2, -1)$, $\vec{b} = (3, 4)$, 且 $\vec{a} + k\vec{b}$ 与 $(1, 1)$ 垂直, 求 k 。
 If $\vec{a} = (2, -1)$, $\vec{b} = (3, 4)$, and $\vec{a} + k\vec{b}$ is perpendicular to $(1, 1)$, find k .

- (A) $-\frac{1}{7}$ (C) $\frac{1}{7}$
 (B) $-\frac{3}{7}$ (D) $\frac{3}{7}$

18. 点 P 在 x 轴上, 且与 $(6, 8)$ 距离为 10。若 P 的横坐标为正, 求 P 。
 Point P is on the x -axis and is 10 units from $(6, 8)$. If P has positive x -coordinate, what is P ?

- (A) $(0, 0)$ (C) $(12, 0)$
 (B) $(6, 0)$ (D) $(14, 0)$

19. 若 r_1, r_2 是方程 $x^2 - 5x + 6 = 0$ 的根, 求 $\frac{1}{r_1} + \frac{1}{r_2}$ 。
 For $x^2 - 5x + 6 = 0$, what is the value of $\frac{1}{r_1} + \frac{1}{r_2}$, where r_1, r_2 are the roots?

- (A) $\frac{5}{6}$ (C) $\frac{3}{2}$
 (B) 1 (D) 5

20. 若 $h(x) = \frac{x+1}{x-2}$, 哪个 x 值使 $h(x) = 2$?
 For $h(x) = \frac{x+1}{x-2}$, which value of x makes $h(x) = 2$?

- (A) -5
- (B) -3

- (C) 3
- (D) 5

Notes for candidates

Mathematics items in CSCA-style practice often test direct definitions, symbolic notation, short algebraic manipulation, coordinate geometry, and probability. Work steadily and check whether a set element is a number, a set, or a subset.

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Section B — Physics 物理

1. 一个 2.0 kg 的物体在光滑水平面上由静止开始运动。恒定水平力 6.0 N 作用 3.0 s。末速度是多少？

A 2.0 kg object starts from rest on a smooth horizontal surface. A constant horizontal force of 6.0 N acts for 3.0 s. What is its final speed?

- (A) 3 m/s (C) 9 m/s
(B) 6 m/s (D) 18 m/s

2. 两个电阻 $4\ \Omega$ 和 $6\ \Omega$ 与 20 V 电池串联。电路中的电流是多少？

Two resistors $4\ \Omega$ and $6\ \Omega$ are connected in series to a 20 V battery. What is the current in the circuit?

- (A) 1 A (C) 4 A
(B) 2 A (D) 10 A

3. 一束光从空气进入玻璃并向法线偏折。下列哪一项正确？

A ray of light passes from air into glass and bends toward the normal. Which statement is correct?

- (A) 光在玻璃中速度增大 / The speed of light increases in glass. angle of incidence.
(B) 玻璃的折射率大于空气 / The glass has a larger refractive index than air. (D) 界面处不可能改变方向 / No change in direction can occur at a boundary.
(C) 折射角大于入射角 / The angle of refraction is greater than the

4. 汽车由静止开始，以 $2\ \text{m/s}^2$ 的恒定加速度运动 5 s，然后以该速度继续运动 3 s。总路程是多少？

A car moves from rest with constant acceleration $2\ \text{m/s}^2$ for 5 s, then continues at that speed for 3 s. What total distance does it travel?

- (A) 25 m (C) 55 m
(B) 40 m (D) 80 m

5. 一个 5 kg 的箱子在粗糙地面上受到 20 N 推力，摩擦力为 5 N。加速度是多少？

A 5 kg box is pushed with 20 N on a rough floor. Friction is 5 N. What is the acceleration?

- (A) $1\ \text{m/s}^2$ (C) $3\ \text{m/s}^2$
(B) $2\ \text{m/s}^2$ (D) $4\ \text{m/s}^2$

6. 力 12 N 使物体沿力的方向移动 4 m。所做的功为

A force of 12 N moves an object 4 m in the direction of the force. Work done is

- (A) 3 J (C) 24 J
(B) 16 J (D) 48 J

7. 质量 0.20 kg 的小球以 10 m/s 运动，其动量为

A 0.20 kg ball moving at 10 m/s has momentum

- (A) 0.02 kg m/s (C) 10.2 kg m/s
(B) 2.0 kg m/s (D) 50 kg m/s

8. 半径 2 m、速率 6 m/s 的匀速圆周运动，其向心加速度为

For uniform circular motion of radius 2 m and speed 6 m/s, centripetal acceleration is

- (A) $3\ \text{m/s}^2$ (C) $18\ \text{m/s}^2$
(B) $12\ \text{m/s}^2$ (D) $36\ \text{m/s}^2$

9. 弹簧振子的周期为 0.50 s，其频率为

A mass-spring oscillator has period 0.50 s. Its frequency is

- (A) 0.25 Hz (C) 2.0 Hz
(B) 0.50 Hz (D) 5.0 Hz

10. 两个 $6\ \Omega$ 电阻并联，再与 $3\ \Omega$ 电阻串联。总电阻为

Two $6\ \Omega$ resistors are connected in parallel, then this combination is connected in series with $3\ \Omega$. The total resistance is

- (A) $2\ \Omega$ (C) $6\ \Omega$
 (B) $3\ \Omega$ (D) $9\ \Omega$

11. 交流电源的有效值为 12 V。峰值电压最接近

An AC source is described as 12 V rms. The peak voltage is closest to

- (A) 8.5 V (C) 17 V
 (B) 12 V (D) 24 V

12. 一根竖直直导线中电流向上。在导线东侧某点，磁场方向可用什么判断？

A straight wire carries current upward. At a point east of the wire, the magnetic field direction is found using

- (A) 仅欧姆定律 / Ohm's law only (C) 斯涅尔定律 / Snell's law
 (B) 右手握拳定则 / Right-hand grip rule (D) 胡克定律 / Hooke's law

13. 凸透镜焦距为 10 cm。物体距透镜 30 cm。像距和成像性质是什么？

A convex lens has focal length 10 cm. An object is at 30 cm. What is the image distance and nature?

- (A) 15 cm, real (C) 30 cm, real
 (B) 15 cm, virtual (D) 30 cm, virtual

14. 某波波速为 340 m/s，波长为 2.0 m。3.0 s 内有多少个完整波通过某点？

A wave has speed 340 m/s and wavelength 2.0 m. How many complete waves pass a point in 3.0 s?

- (A) 170 (C) 510
 (B) 340 (D) 680

15. 密闭刚性容器中的理想气体从 300 K 加热到 450 K。初始压强为 80 kPa。末压强是多少？

A sealed rigid container of ideal gas is heated from 300 K to 450 K. Its initial pressure is 80 kPa. What is the final pressure?

- (A) 53 kPa (C) 120 kPa
 (B) 80 kPa (D) 160 kPa

16. 某放射性样品的半衰期为 4 天。8 天后剩余的比例为

The half-life of a radioactive sample is 4 days. After 8 days, the remaining fraction is

- (A) $\frac{1}{8}$ (C) $\frac{1}{3}$
 (B) $\frac{1}{4}$ (D) $\frac{3}{4}$

17. 在光电效应实验中，当频率固定且高于阈频时，增大光强主要会增加

In a photoelectric experiment, increasing light intensity at fixed frequency above threshold mainly increases

- (A) 每个电子的最大动能 / maximum kinetic energy of each electron (C) 发射电子数 / number of emitted electrons
 (B) 逸出功 / work function (D) 阈频 / threshold frequency

18. 一个 2 kg 的物体被举高 3 m，再由静止释放。忽略空气阻力，回到起始高度前瞬间的速度是多少？

A 2 kg object is lifted 3 m, then released from rest. Ignoring air resistance, what is its speed just before returning to the starting height?

- (A) $\sqrt{30}\ \text{m/s}$ (C) 30 m/s
 (B) $\sqrt{60}\ \text{m/s}$ (D) 60 m/s

19. 一个 1 kg 小车以 4 m/s 与另一个静止的相同小车发生一维弹性正碰。碰后两车速度是多少？

A 1 kg cart moving at 4 m/s collides elastically head-on with an identical cart at rest. What are their speeds after collision?

- (A) 0 m/s and 4 m/s (C) 4 m/s and 0 m/s
 (B) 2 m/s and 2 m/s (D) -4 m/s and 4 m/s

20. 温度计读数为 27°C。若温度升高 20°C，最终开尔文温度约为

A thermometer reads 27°C. If the temperature rises by 20°C, the final temperature in kelvin is approximately

- (A) 293 K
- (B) 300 K

- (C) 320 K
- (D) 347 K

Constant reminder

Unless stated otherwise, use $F = ma$, $V = IR$, series resistance $R_{\text{total}} = R_1 + R_2$, and the qualitative refraction rule: toward the normal means entering a higher refractive index medium.

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Section C — Chemistry 化学

1. 根据反应 $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$, 2.0 mol CH_4 完全燃烧会生成多少 mol CO_2 ?

How many moles of CO_2 are produced when 2.0 moles of CH_4 burn completely according to $CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$?

- (A) 0.5 mol (C) 2.0 mol
(B) 1.0 mol (D) 4.0 mol

2. 溶液 X 的 $pH = 3$, 溶液 Y 的 $pH = 5$ 。下列哪一项最准确?

Solution X has $pH = 3$ and solution Y has $pH = 5$. Which statement is most accurate?

- (A) X is 100 times more acidic than Y. (C) Both are neutral.
(B) Y is 100 times more acidic than X. (D) X is basic and Y is acidic.

3. 下列哪种化合物是醇?

Which compound is an alcohol?

- (A) CH_3CH_2OH (C) CH_4
(B) CH_3COOH (D) $NaCl$

4. 配平反应 $2H_2 + O_2 \rightarrow 2H_2O$ 需要多少个 O_2 分子?

How many O_2 molecules are needed to balance $2H_2 + O_2 \rightarrow 2H_2O$?

- (A) 1 (C) 3
(B) 2 (D) 4

5. 某原子有 11 个质子和 12 个中子, 其质量数为

An atom has 11 protons and 12 neutrons. Its mass number is

- (A) 11 (C) 23
(B) 12 (D) 24

6. 第三周期从 Na 到 Cl, 原子半径通常发生变化, 其主要原因是

Across Period 3 from Na to Cl, atomic radius generally changes because

- (A) effective nuclear charge increases (C) nuclei lose all protons
(B) new electron shells are added each step (D) atoms become molecules

7. 下列哪一组最可能形成离子化合物, 原因是什么?

Which pair would most likely form an ionic compound, and why?

- (A) Na and Cl , metal transfers electron to nonmetal (C) O and H , both are metals
(B) C and H , equal metals share ions (D) Cl and Cl , one atom becomes sodium

8. 在本样卷的标准状况下, 1 mol 气体占 22.4 L。燃烧 0.50 mol CH_4 需要多少体积的 O_2 ?

At STP in this sample, 1 mole gas occupies 22.4 L. What volume of O_2 is required to burn 0.50 mol CH_4 ?

- (A) 11.2 L (C) 33.6 L
(B) 22.4 L (D) 44.8 L

9. 某溶液在 0.50 L 中含有 0.20 mol 溶质, 其物质的量浓度为

A solution contains 0.20 mol solute in 0.50 L. Its molarity is

- (A) 0.10 M (C) 0.40 M
(B) 0.25 M (D) 2.5 M

10. 某溶液 $[H^+] = 10^{-2} M$ 。其 pH 和酸碱性是什么?

A solution has $[H^+] = 10^{-2} M$. What is its pH and acid/base character?

- (A) pH 2, acidic
(B) pH 2, basic
- (C) pH 12, acidic
(D) pH 7, neutral

11. 在 $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$ 中, 锌被
In $Zn + Cu^{2+} \rightarrow Zn^{2+} + Cu$, zinc is

- (A) 被还原 / reduced
(B) 被氧化 / oxidized
- (C) 不变 / unchanged
(D) 被中和 / neutralized

12. 在 $Zn|Zn^{2+}||Cu^{2+}|Cu$ 原电池中, 下列哪一项正确?
In a $Zn|Zn^{2+}||Cu^{2+}|Cu$ galvanic cell, which statement is correct?

- (A) Electrons flow from Cu to Zn; Zn is reduced.
(B) Electrons flow from Zn to Cu; Zn is oxidized.
- (C) Electrons flow through the salt bridge.
(D) Cu metal is oxidized at the anode.

13. 某反应向周围释放热量, 该反应是
A reaction releases heat to the surroundings. It is

- (A) 吸热 / endothermic
(B) 仅等温 / isothermal only
- (C) 放热 / exothermic
(D) 不可能 / impossible

14. 下列哪种变化通常会提高反应速率?
Which change usually increases reaction rate?

- (A) 降低温度 / Lowering temperature
(B) 降低浓度 / Decreasing concentration
- (C) 加入合适催化剂 / Adding a suitable catalyst
(D) 减少碰撞 / Using fewer collisions

15. 对于 $N_2 + 3H_2 \rightleftharpoons 2NH_3$, 根据勒夏特列原理, 哪种变化有利于生成 NH_3 ?
For $N_2 + 3H_2 \rightleftharpoons 2NH_3$, which change favors NH_3 formation according to Le Chatelier's principle?

- (A) Decrease pressure
(B) Increase pressure
- (C) Remove N_2
(D) Add catalyst only

16. 哪种官能团解释了乙酸能与碳酸盐反应释放 CO_2 ?
Which functional group explains why ethanoic acid reacts with carbonate to release CO_2 ?

- (A) $-OH$
(B) $-COOH$
- (C) $-CHO$
(D) $-NH_2$

17. 下列哪种烃是不饱和烃, 并能使溴水褪色?
Which hydrocarbon is unsaturated and would decolorize bromine water?

- (A) C_2H_6
(B) CH_4
- (C) C_2H_4
(D) C_3H_8

18. 稀释浓酸时, 哪种操作及其原因都正确?
When diluting concentrated acid, which action and reason are both correct?

- (A) Add acid to water slowly; heat is absorbed safely by larger water volume.
(B) Add water to acid quickly; splashing is impossible.
- (C) Heat the acid first; it lowers reactivity.
(D) Smell the acid; odor shows concentration accurately.

19. 滴定中滴定管读数从 2.40 mL 变为 24.85 mL。若滴定液浓度为 0.100 M, 滴出多少摩尔?
In a titration, a burette reading changes from 2.40 mL to 24.85 mL. If the titrant is 0.100 M, how many moles were delivered?

- (A) 2.245×10^{-3} mol
(B) 2.485×10^{-3} mol
- (C) 2.725×10^{-3} mol
(D) 22.45 mol

20. 弱酸用强碱滴定, 终点区域高于 pH 7。哪种指示剂选择最合理?
A weak acid is titrated with a strong base. Which indicator choice is most reasonable for the endpoint region above pH 7?

- (A) Phenolphthalein
(B) Copper wire
- (C) Sodium chloride
(D) Distilled water

Chemistry practice focus

Look for mole ratios in balanced equations, know the pH scale, and identify common functional groups from formula patterns. The worked solution should explain the reason, not just mark the answer.

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Section D — STEM Chinese 理科中文

短文 / STEM Reading

实验时，学生把铁钉放入硫酸铜溶液中。几分钟后，铁钉表面出现红色物质，溶液颜色变浅。老师说，这是置换反应，因为铁比铜活泼，铁原子把铜离子从溶液中置换出来。

Shiyan shi, xuesheng ba tieding fangru liusuan tong rongye zhong. Ji fenzhong hou, tieding biao mian chuxian hongse wuzhi, rongye yanse bian qian. Laoshi shuo, zhe shi zhihuan fanying, yinwei tie bi tong huopo, tie yuanzi ba tong lizi cong rongye zhong zhihuan chulai.

实验 (shiyan): experiment; **铁钉** (tieding): iron nail; **硫酸铜溶液** (liusuan tong rongye): copper(II) sulfate solution; **置换反应** (zhihuan fanying): displacement reaction; **活泼** (huopo): reactive; **离子** (lizi): ion.

1. 根据短文，铁钉表面出现了什么？

According to the passage, what appears on the surface of the iron nail?

- (A) 蓝色气体 / A blue gas (C) 白色盐晶体 / White salt crystals
(B) 红色物质 / A red substance (D) 黑烟 / Black smoke

2. 为什么这个反应被称为置换反应？

Why is the reaction called a displacement reaction?

- (A) 铜比铁更活泼 / Copper is more reactive than iron. (C) 溶液比沸水更热 / The solution becomes hotter than boiling water.
(B) 铁把铜离子从溶液中置换出来 / Iron replaces copper ions from the solution. (D) 没有原子改变位置 / No atoms change position.

3. 根据短文，哪组观察和解释配对正确？

Which observation and explanation are correctly paired from the passage?

- (A) red substance appears – iron displaces copper ions (C) white crystals appear – water evaporates
(B) solution darkens – copper is more reactive (D) black smoke appears – gas burns

4. 词语 **溶液** (rongye) 的意思是

The word **溶液** (rongye) means

- (A) force 力 (C) speed 速度
(B) temperature 温度 (D) solution 溶液

5. 选择最合适的中文词语填空：铁比铜更_____。

Choose the best Chinese word to complete: 铁比铜更_____。

- (A) 安静 / quiet (C) 活泼 / reactive
(B) 透明 / transparent (D) 干净 / clean

6. 哪个词语的意思是“ion”（离子）？

Which term means “ion”?

- (A) 实验 / experiment (C) 颜色 / color
(B) 表面 / surface (D) 离子 / ion

7. 哪一句同时保留了“学生把铁钉放入溶液中”的动作和对象？

Which sentence preserves both the action and the object of “学生把铁钉放入溶液中”?

- (A) 老师把铜放在桌子上。 / The teacher puts copper on the desk. solution.
(B) 溶液没有颜色。 / The solution has no color. (D) 铁钉变成气体。 / The iron nail becomes gas.
(C) 学生把铁钉放入溶液中。 / Students put the iron nail into the

8. 找出句子 **铁钉表面出现蓝色物质**。中与短文不符的地方。

Identify the error in: **铁钉表面出现蓝色物质**。

- (A) 铁钉 should be 铜钉 / iron nail should be copper nail
 (B) 表面 should be 里面 / surface should be inside
 (C) 物质 should be 老师 / substance should be teacher
 (D) 蓝色 should be 红色 / blue should be red

9. 这篇短文最可能属于哪个科学主题?

What is the likely science topic of the passage?

- (A) 遗传学 / genetics
 (B) 行星运动 / planet motion
 (C) 化学反应 / chemical reaction
 (D) 声波 / sound waves

10. 选择“experiment”对应的中文词。

Choose the best Chinese for “experiment”.

- (A) 春节 / Spring Festival
 (B) 红包 / red envelope
 (C) 文章 / article
 (D) 实验 / experiment

11. 填空：铜离子从_____中被置换出来。

Complete: 铜离子从_____中被置换出来。

- (A) 空气 / air
 (B) 书包 / schoolbag
 (C) 溶液 / solution
 (D) 黑板 / blackboard

12. 哪一组拼音和老师说的反应类型正确对应?

Which pinyin-term pair correctly matches the reaction type named by the teacher?

- (A) shiyan fangfa / 实验方法
 (B) tieding biao mian / 铁钉表面
 (C) rongye yanse / 溶液颜色
 (D) zhihuan fanying / 置换反应

13. 简答：写出短文中直接说明铁能置换铜离子的原因的中文分句。

Short answer: Write the Chinese clause that directly states why iron can displace copper ions.

14. 简答：将铁钉翻译成英文。

Short answer: Translate 铁钉 into English.

15. 哪一个改写句保留了短文中的因果逻辑?

Which rewritten sentence keeps the causal logic of the passage?

- (A) 因为铜比铁活泼，所以铜离子置换铁。 / Because copper is more reactive, copper ions displace iron.
 (B) 因为铁比铜活泼，所以铁把铜离子置换出来。 / Because iron is more reactive, it displaces copper ions.
 (C) 因为溶液变浅，所以铁不反应。 / Because the solution becomes lighter, iron does not react.
 (D) 因为老师观察，所以铜更活泼。 / Because the teacher observes, copper is more reactive.

16. 选择最佳填空：几分钟后，铁钉表面_____红色物质。

Choose the best fill: 几分钟后，铁钉表面_____红色物质。

- (A) 学习 / study
 (B) 休息 / rest
 (C) 购买 / buy
 (D) 出现 / appear

17. 短语颜色变浅的意思是

The phrase 颜色变浅 means

- (A) mass becomes zero 质量变为零
 (B) the object becomes very hot 物体变得很热
 (C) the color becomes lighter 颜色变浅
 (D) the sound becomes loud 声音变大

18. 找错：因为铜比铁活泼，所以铁置换铜离子。哪一部分与短文矛盾?

Error spotting: 因为铜比铁活泼，所以铁置换铜离子。 Which part conflicts with the passage?

- (A) 因为 / because
(B) 所以 / therefore
- (C) 铜离子 / copper ions
(D) 铜比铁活泼 / copper is more reactive than iron

19. 简答：用英文说明短文中哪些证据表明发生了反应。

Short answer: In English, explain what evidence in the passage shows a reaction occurred.

20. 哪一组最好地把中文词语和它在实验中的作用联系起来，而不只是词典意思？

Which pair best connects a Chinese term to its role in the experiment, not just its dictionary meaning?

- (A) 硫酸铜溶液 – medium containing copper ions
(B) 红包 – source of copper ions
- (C) 团聚 – reaction product
(D) 春联 – laboratory container

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Section E — Humanities Chinese 文科中文

短文 / Humanities Reading

春节前，很多家庭会打扫房间、贴春联、准备年夜饭。长辈常给孩子红包，表示祝福。对许多人来说，春节不仅是休息的时间，也是家人团聚、表达感谢和传承文化的机会。

Chunjie qian, henduo jiating hui dasao fangjian, tie chunlian, zhunbei nianye fan. Zhangbei chang gei haizi hongbao, biaoshi zhufu. Dui xu duo ren lai shuo, Chunjie bujin shi xiuxi de shijian, ye shi jiaren tuanju, biaoda ganxie he chuancheng wenhua de jihui.

春节 (Chunjie): Spring Festival; **春联** (chunlian): New Year couplets; **红包** (hongbao): red envelope; **祝福** (zhufu): blessing or good wish; **团聚** (tuanju): reunion; **传承文化** (chuancheng wenhua): to pass down culture.

1. 短文提到很多家庭在春节前会做哪件事？

Which activity is mentioned as something many families do before Spring Festival?

- (A) 种水稻 / Planting rice (C) 卖火车票 / Selling train tickets
(B) 打扫房间 / Cleaning the house (D) 参加物理考试 / Taking a physics test

2. 短文中，给红包主要表达什么？

What does giving red envelopes mainly express in the passage?

- (A) 竞争 / Competition (C) 天气报告 / A weather report
(B) 祝福 / Good wishes (D) 法律规则 / A legal rule

3. 短文说春节也是家人用来做什么的时间？

The passage says Spring Festival is also a time for family to

- (A) 争论考试 / argue about exams (C) 团聚 / gather together
(B) 购买机器 / buy machines (D) 学习物理公式 / study physics formulas

4. 词语 **团聚** (tuanju) 的意思是

The word **团聚** (tuanju) means

- (A) measure temperature 测量温度 (C) write a lab report 写实验报告
(B) dilute acid 稀释酸 (D) reunion 团聚

5. 选择最佳填空：春节前，很多家庭会_____ 房间。

Choose the best fill: 春节前，很多家庭会_____ 房间。

- (A) 计算 / calculate (C) 沸腾 / boil
(B) 打扫 / clean (D) 折射 / refract

6. 春节前传统上会贴在门上或墙上的是什么？

Which item is traditionally pasted on doors or walls before Spring Festival?

- (A) 红包 / red envelope (C) 春联 / New Year couplets
(B) 试卷 / test paper (D) 温度计 / thermometer

7. 短语 **不仅... 也...** 的意思是

The phrase **不仅... 也...** means

- (A) 不是这个就是那个 / either...or... (C) 虽然... 但是... / although...but...
(B) 因为... 所以... / because...therefore... (D) 不仅... 也... / not only...but also...

8. 哪个成语最适合描述快乐的家庭团聚？

Which idiom best describes a happy family reunion?

- (A) 刻舟求剑 / rigidly follow an old method (C) 团团圆圆 / happy reunion
(B) 画蛇添足 / add needless detail (D) 亡羊补牢 / fix a problem after loss

9. 选择 **祝福** 最恰当的用法。

Choose the best use of **祝福**.

- (A) 杯子给桌子祝福。 / The cup blesses the table. (C) 法律给雨水祝福。 / Law blesses the rain.
 (B) 温度给石头祝福。 / Temperature blesses the stone. (D) 长辈给孩子祝福。 / Elders give children blessings.

10. 文言片段：学而时习之，不亦说乎？其主旨最接近

Classical fragment: 学而时习之，不亦说乎？ The main idea is closest to

- (A) 旅行总是危险 / Travel is always dangerous. (C) 金钱决定友谊 / Money decides friendship.
 (B) 学习并复习可以快乐 / Learning and reviewing can be joyful. (D) 科学排斥语言 / Science rejects language.

11. 在长辈常给孩子红包中，谁给红包？

In 长辈常给孩子红包, who gives the red envelopes?

- (A) 孩子 / children (C) 长辈 / elders
 (B) 只有老师 / teachers only (D) 只有邻居 / neighbors only

12. 现代短文句子：传统不是旧东西，而是人们不断理解生活的方式。它暗示什么？

Modern essay excerpt: 传统不是旧东西，而是人们不断理解生活的方式。 What does it suggest?

- (A) 传统只是旧垃圾 / Tradition is only old rubbish. (C) 理解被禁止 / Understanding is forbidden.
 (B) 生活没有文化 / Life has no culture. (D) 传统在生活中仍可有意义 / Tradition can stay meaningful in life.

13. 简答：写出短文中体现春节在代际之间延续文化的中文短语。

Short answer: Write the Chinese phrase from the passage that shows Spring Festival passes culture between generations.

14. 简答：用英文解释为什么短文说春节“不仅”是休息的时间。

Short answer: In English, explain why the passage says Spring Festival is “not only” a time to rest.

15. 哪一句正确使用了因为... 所以...?

Which sentence correctly uses 因为... 所以...?

- (A) 因为春节到了，也家人团聚。 (C) 因为春节到了，所以家人团聚。
 (B) 春节因为到了所以。 (D) 家人所以因为团聚。

16. 找错：春节只是休息的时间。哪个词最改变了短文原意？

Error spotting: 春节只是休息的时间。 Which word most changes the passage’s meaning?

- (A) 春节 (C) 时间
 (B) 休息 (D) 只是

17. 哪个成语表示“adding something unnecessary and making it worse”?

Which chengyu means “adding something unnecessary and making it worse”?

- (A) 团团圆圆 (C) 画蛇添足
 (B) 一帆风顺 (D) 守株待兔

18. 短语表达感谢的意思是

The phrase 表达感谢 means

- (A) 测量距离 / measure distance (C) 打开电路 / open a circuit
 (B) 烧水 / boil water (D) 表达感谢 / express gratitude

19. 简答：写出短文中的一个传统活动，并说明它表达的一种价值。

Short answer: Give one tradition from the passage and one value it expresses.

20. 哪一组正确配对了节日事物或行为及其在短文中的文化作用？

Which pair correctly matches a festival object or action with its cultural role in the passage?

- (A) 红包 – expresses blessing
(B) 团聚 – measures temperature
(C) 春联 – stores electric current
(D) 打扫房间 – dilutes acid

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Vocabulary Support

Chinese	Pinyin	English
实验	shiyān	experiment, laboratory trial
溶液	róngyè	solution
离子	lǐzǐ	ion, charged particle
活泼	huópō	reactive, easy to react
春节	Chūnjié	Spring Festival
祝福	zhùfú	blessing or good wish
团聚	tuánjù	family reunion

In csca.id worked solutions, technical Chinese words are translated into English and linked back to the concept tested in science or humanities questions. This helps students answer language questions without losing the subject concept.

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Answer Key

Section	Q#	Answer	Hint
Math	1	B	The elements are numbers; $\{0\}$ is a subset of A , not an element.
Math	2	B	First $g(2) = 9$, then solve $2x - 5 = 9$, so $x = 7$.
Math	3	A	There are 5 non-green balls: $(5/10)(4/9) = 2/9$.
Math	4	A	Add 4 then divide by 3: $x \leq 5$.
Math	5	C	$g(x) = (x - 1)(x - 3)$, so integer solutions are 1, 2, 3.
Math	6	A	The gradient is 3, so $y = 3x - 1$.
Math	7	C	$16 = 2^4$.
Math	8	B	$\log_{10}(1000) = 3$ and $\log_{10}(10) = 1$.
Math	9	C	Use $\cos \theta = 4/5$, then $\sin 2\theta = 2 \sin \theta \cos \theta = 24/25$.
Math	10	C	Area = $\pi r^2 = \frac{22}{7} \times 49 = 154$.
Math	11	C	Height = $120/(4 \times 5) = 6$.
Math	12	B	The terms near 30 are 29, 32; the first above 30 is 32.
Math	13	B	$48 = 6r^3$, so $r = 2$ and $a_1 = 3$.
Math	14	C	Given at least one head, the possible outcomes are HH, HT, TH; two have exactly one head.
Math	15	A	The middle value in the ordered list is 4.
Math	16	B	The original total is 36, so $x = 12$; new mean = $48/5 = 9.6$.
Math	17	A	The dot product with $(1, 1)$ is $1 + 7k$, so $k = -1/7$.
Math	18	C	$(x - 6)^2 + 8^2 = 10^2$, giving $x = 0$ or 12; positive gives 12.
Math	19	A	$\frac{1}{r_1} + \frac{1}{r_2} = (r_1 + r_2)/(r_1 r_2) = 5/6$.
Math	20	D	Solve $x + 1 = 2(x - 2)$, giving $x = 5$.
Physics	1	C	Acceleration $a = F/m = 3 \text{ m/s}^2$; $v = at = 9 \text{ m/s}$.
Physics	2	B	Series resistance is 10Ω ; current $I = 20/10 = 2 \text{ A}$.
Physics	3	B	Toward the normal indicates a medium with higher refractive index.
Physics	4	C	The first part is 25 m; final speed is 10 m/s, so the next 3 s adds 30 m.
Physics	5	C	Net force is 15 N, so $a = 15/5 = 3 \text{ m/s}^2$.
Physics	6	D	Work $W = Fs = 12 \times 4 = 48 \text{ J}$.
Physics	7	B	Momentum $p = mv = 0.20 \times 10 = 2.0$.
Physics	8	C	Centripetal acceleration $v^2/r = 36/2 = 18$.
Physics	9	C	Frequency $f = 1/T = 1/0.50 = 2 \text{ Hz}$.
Physics	10	C	Two 6Ω resistors in parallel give 3Ω , then series $+3 \Omega = 6 \Omega$.
Physics	11	C	Peak value is $V_{\text{rms}}\sqrt{2} \approx 17 \text{ V}$.
Physics	12	B	Magnetic field around a straight wire follows the right-hand grip rule.
Physics	13	A	The lens formula gives $v = 15 \text{ cm}$; a convex lens with object beyond f forms a real image.
Physics	14	C	Frequency is $340/2 = 170 \text{ Hz}$; in 3 s, 510 waves pass.
Physics	15	C	At fixed volume, P/T is constant, so $80 \times 450/300 = 120 \text{ kPa}$.
Physics	16	B	Eight days is two half-lives, leaving $\frac{1}{4}$.
Physics	17	C	Above threshold, intensity changes the number of photons and emitted electrons, not each electron's maximum energy.
Physics	18	B	Energy gives $\frac{1}{2}mv^2 = mgh$, so $v = \sqrt{2gh} = \sqrt{60} \text{ m/s}$.
Physics	19	A	For identical masses in a one-dimensional elastic collision, the moving cart transfers its speed to the resting cart.
Physics	20	C	Final Celsius temperature is 47°C , so $47 + 273 \approx 320 \text{ K}$.
Chemistry	1	C	The mole ratio $\text{CH}_4 : \text{CO}_2$ is 1 : 1.
Chemistry	2	A	A difference of 2 pH units means a 10^2 difference in hydrogen ion concentration.
Chemistry	3	A	The $-\text{OH}$ group in $\text{CH}_3\text{CH}_2\text{OH}$ identifies an alcohol.
Chemistry	4	A	The balanced equation uses one O_2 molecule.
Chemistry	5	C	Mass number = $p + n = 11 + 12 = 23$.
Chemistry	6	A	Effective nuclear charge increases across the period, pulling electrons closer.

Section	Q#	Answer	Hint
Chemistry	7	A	Sodium is a metal and chlorine is a nonmetal, so electron transfer is likely.
Chemistry	8	B	0.50 mol CH_4 needs 1.00 mol O_2 , which occupies 22.4 L.
Chemistry	9	C	Molarity = $0.20/0.50 = 0.40$ M.
Chemistry	10	A	$pH = -\log[H^+] = 2$, and pH below 7 is acidic.
Chemistry	11	B	Zinc loses electrons to become Zn^{2+} .
Chemistry	12	B	Zinc is oxidized at the anode, and electrons flow through the wire to copper.
Chemistry	13	C	Heat released to surroundings means exothermic.
Chemistry	14	C	A catalyst lowers activation energy and speeds reaction.
Chemistry	15	B	Higher pressure favors the side with fewer gas moles, which is $2NH_3$.
Chemistry	16	B	Carboxylic acids contain the $-COOH$ group, which gives acidic behavior.
Chemistry	17	C	C_2H_4 contains a carbon-carbon double bond and can decolorize bromine water.
Chemistry	18	A	Adding acid slowly to water helps dissipate the heat of dilution.
Chemistry	19	A	Delivered volume is 22.45 mL = 0.02245 L, so moles = 0.100×0.02245 .
Chemistry	20	A	Phenolphthalein changes in the basic endpoint range, suitable for weak acid and strong base.
STEM Chinese	1	B	The passage says the iron nail surface shows a red substance.
STEM Chinese	2	B	Iron is more reactive and displaces copper ions from solution.
STEM Chinese	3	A	The red substance is observed, and the passage explains it by iron displacing copper ions.
STEM Chinese	4	D	溶液 means solution.
STEM Chinese	5	C	活泼 is the technical word for reactive here.
STEM Chinese	6	D	离子 means ion.
STEM Chinese	7	C	The sentence with 把铁钉放入溶液中 keeps both the placement action and the object.
STEM Chinese	8	D	The passage says red substance, not blue.
STEM Chinese	9	C	The passage describes a displacement chemical reaction.
STEM Chinese	10	D	实验 means experiment.
STEM Chinese	11	C	Copper ions are displaced from the solution.
STEM Chinese	12	D	置换反应 is read <i>zhihuán fānying</i> .
STEM Chinese	13	因为铁比铜活泼	This clause gives the cause: iron is more reactive than copper.
STEM Chinese	14	iron nail	铁钉 means iron nail.
STEM Chinese	15	B	This option preserves both the cause and result stated in the passage.
STEM Chinese	16	D	出现 means appears.
STEM Chinese	17	C	颜色变浅 means the color becomes lighter.
STEM Chinese	18	D	The passage says iron is more reactive than copper.
STEM Chinese	19	red substance and lighter solution color	These two observations are evidence that the reaction occurred.
STEM Chinese	20	A	The copper sulfate solution is the medium containing copper ions.
Humanities Chinese	1	B	The passage lists cleaning rooms before Spring Festival.
Humanities Chinese	2	B	Red envelopes express blessings or good wishes.
Humanities Chinese	3	C	The passage says Spring Festival is a time for family reunion.
Humanities Chinese	4	D	团聚 means reunion.
Humanities Chinese	5	B	打扫房间 means clean the room or house.
Humanities Chinese	6	C	春联 are New Year couplets pasted for the festival.
Humanities Chinese	7	D	不仅...也... means not only...but also....
Humanities Chinese	8	C	团团圆圆 suits a happy reunion.
Humanities Chinese	9	D	Elders giving children blessings is natural usage.
Humanities Chinese	10	B	The classical line connects learning, review, and joy.
Humanities Chinese	11	C	长辈 means elders.
Humanities Chinese	12	D	The excerpt says tradition remains a way to understand life.

Section	Q#	Answer	Hint
Humanities Chinese	13	传承文化	This phrase points to culture being passed down.
Humanities Chinese	14	It is also for re-union, gratitude, and passing down culture.	The passage contrasts rest with social and cultural meanings.
Humanities Chinese	15	C	The structure 因为... 所以... links reason and result.
Humanities Chinese	16	D	只是 conflicts with the passage's "not only" structure.
Humanities Chinese	17	C	画蛇添足 means adding unnecessary extra detail.
Humanities Chinese	18	D	表达感谢 means express gratitude.
Humanities Chinese	19	Example: red envelopes express blessing.	Any passage-based tradition with a matching value is acceptable.
Humanities Chinese	20	A	The passage says elders give red envelopes to express good wishes.

Worked-solution style

For a full csca.id product, each answer key row expands into an English explanation: identify the tested concept, show the shortest valid working step, explain why the other options are incorrect when useful, and translate technical Chinese vocabulary.

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Closing

This is a sample. Full package at <https://csca.id>

This sample is designed for previewing format, difficulty, and explanation style. The complete csca.id package can include full-length mock papers, bilingual technical vocabulary support, and worked solutions for students preparing for CSCA-style assessments.

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