

基北區臺北市立西松高級中學110學年度高級中等學校特色招生考試分發入學
2021 Taipei Municipal XiSong High School
Special Enrollment Program Examination for Taipei and Keelung Area

資料判讀測驗 Source Analysis

110年6月27日 Sunday 27 June 2021

第一部分：社會科問答題組參考解答

Section 1 – Markscheme to Individuals and Societies Source Analysis

1.

- a. Award up to 1 mark for each of the following 下列每項可至多得 1 分 [3]:
- i. Clarity and coherence (i.e. is the answer structured and delivered clearly?) 清晰度和連貫性 (答案是否清晰組織和傳遞?)
 - ii. Possible answers include (but are not limited to) 可能答案包括 (但不限於):
 1. The SC can issue legally binding resolutions on Member States 安理會可向成員國提出具法律約束力的決議
 2. The SC can authorise military operations and deploy UN Peacekeepers 安理會可授權軍事行動和部署維和部隊
 3. The GA rarely takes direct action and mainly makes recommendations 聯大通常只會給予建議，很少採取直接行動
 - iii. Reasoning (i.e. does answer follow a clear line of logic?) 論證 (答案是否遵循清晰的邏輯線)
- b. Award up to 1 mark for each of the following 下列每項可至多得 1 分 [3]:
- i. Clarity and coherence (i.e. is the answer structured and delivered clearly?) 清晰度和連貫性 (答案是否清晰組織和傳遞?)
 - ii. Possible answers include (but are not limited to) 可能答案包括 (但不限於):
 1. A minority of Member States in the SC hold the majority of power (i.e. the SC has more authority and power than the GA, but only comprise of 15 Member States as opposed to the GA's 193) 安理會中少數的成員國擁有多數的權力 (安理會只有 15 個成員國，但比有 193 個成員國的聯大更有權力)
 2. The GA can gather up to 193 Member States at a time; the sheer number of interests that need to be represented can prove to be problematic for deliberative and policymaking efficiency 聯大可同時召集 193 個成員國；其相關利益之多，可能會影響審議和決策的效率
 - iii. Reasoning (i.e. does to answer follow a clear line of logic?) 論證 (答案是否遵循清晰的邏輯線)

- c. Deduct up to 1 point for going over the word/sentence limit 超過字 / 句數限制之答案至多扣 1 分

2. [6]

- a. Award up to 2 mark for clarity and coherence (i.e. is the answer structured and delivered clearly?) 清晰度和連貫性 (答案是否清晰組織和傳遞?) 可至多得 2 分
- b. Award up to 2 marks for source use (to obtain the full 2 marks, answers must make direct reference to both sources; in-text citations are acceptable) 資料使用可至多得 2 分 (欲得 2 分, 答案必須直接連結兩份資料; 可接受內文引注)
- c. Award up to 2 marks for reasoning (i.e. does to answer follow a clear line of logic AND fit within the context of the question + sources?) 推理可至多得 2 分 (答案是否遵循清晰的邏輯線 且 符合問題和資料的背景?)
- d. Deduct up to 2 points for going over the word/sentence limit (only deduct 2 points if the answer is 7 or more sentences long) 超過字 / 句數限制可至多扣 2 分 (若應答等於或多餘 7 句, 扣 2 分)
- e. Sample 6 point response 6 分範例:

“Permanent membership in the SC has remained at the centre of UN policy discourse for the past few decades. Concern regarding the monopoly of power and influence wielded by the P5 is widespread among the majority of Member States. It is important to recognise that the SC arguably has more decision-making and deliberative power than any other UN organ due to its ability to issue legally binding resolutions on Member States, as well as the P5’s veto powers (Source A). Therefore, the SC and, by extension, the P5 have more say on international issues than their peers, despite belonging to a minority in the UN (Source B) (Source A). In conclusion, the P5 have too much influence over the UN, which perhaps indicates a wider systemic power imbalance in the organisation as a whole.”

「在過去幾十年中, 安理會的『常任理事國』會籍一向是討論聯合國組織運作時的核心問題。在此編制下, 大多數的成員國普遍擔心權力和影響力被五個常任理事國壟斷。由於安理會能對會員國發布具有法律約束力的決議, 且五個常任理事國又有否決權, 安理會比任何其他聯合國機構都擁有更大的決策權和審議權 (資料 A)。因此, 儘管安理會屬聯合國中國家數量上的少數派, 但安理會和五個常任理事國在國際議題上的發言權卻比其他成員國還大 (資料 B) (資料 A)。總而言之, 這五個常任理事國對聯合國的影響過大, 展示出組織存在系統性權力失衡的情況。」

3. Award up to 8 marks according to the following rubric 依據下列評分細則可至多得 8 分 [8]:

7-8 — The response is focused; Clear references are made to the sources, and these references are used effectively as evidence to support the analysis; Accurate and relevant own knowledge is demonstrated. There is effective synthesis of own knowledge and source material.

應答有重點；明確連結資料，且該連結有效、有助分析；展示準確且相關的個人知識，並有效融合個人知識和資料。

4-6 — The response is generally focused; References are made to the sources, and these references are used as evidence to support the analysis; Where own knowledge is demonstrated, this lacks relevance or accuracy. There is little or no attempt to synthesise own knowledge and source material.

應答通常有重點；有連結資料，且該連結有助分析；展示個人知識時不夠相關和精準。沒有嘗試或僅有限地融合個人知識和資料。

1-3 — The response lacks focus; References to the sources are made, but references only consist of descriptions of the content of the sources; No own knowledge is demonstrated or, where it is demonstrated, it is inaccurate or irrelevant.

應答缺乏重點；有連結資料，但連結僅限資料內容的復述；沒有展示個人知識，或僅展現不精準和不相關的個人知識。

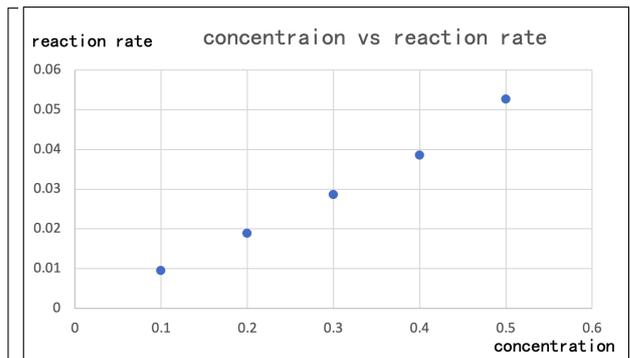
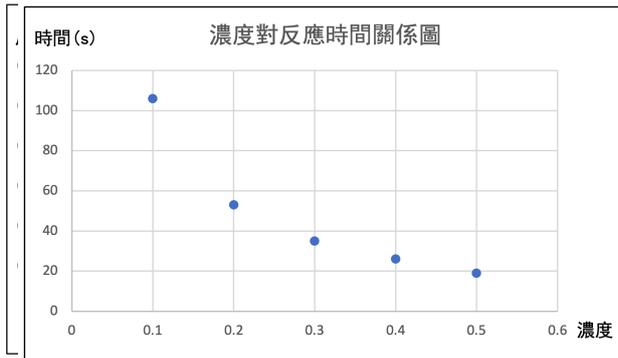
數理科計算題組參考詳解

Solutions to Mathematics and Science Source Analysis

Question 1

問題 1

1. No. 2, 3, 4, 5, & 6
溶液編號 2、3、4、5、6
2. (1) the concentration of solution A
A溶液的濃度
(2) reaction time
反應時間
(3) the concentration of solution B, total volume of solution, temperature, pressure, etc.
B溶液的濃度、溶液的總體積、溫度、壓力……
3. Concentration is directly proportional to reaction rate.
以濃度對反應時間做圖，可發現濃度越大，所需的反應時間越短。



4. This experiment aims to investigate the relationship between temperature and reaction time. The higher the temperature, the faster the rate of reaction; therefore, $t > 30$ seconds.

此實驗想探討溫度與反應速率的關係。由表可知溫度越低，所需的反應時間越長，故 $t > 30$ 秒。

Question 2

問題 2

- $X = \text{column E} \div (\text{column B} \times \text{column C} \times \text{column D})$, X is density
 $X = E \text{ 欄} \div (B \text{ 欄} \times C \text{ 欄} \times D \text{ 欄})$, X 為密度
- As each substance has its own density, there are at least five materials inside the box.
 至少含有 5 種材質，因為含有 5 種不同密度的物質。
- Volume and density are inversely proportional when mass is fixed.
 當質量相同時，體積和密度成反比。
- Density determines whether an object will float or sink in water. An object will sink if its density is higher than water, and an object will float if its density is lower than water.
 物體的沉浮與密度有關，密度大於水會沉入水中(沉體)、密度小於水會浮出水面(浮體)、密度為 1 的物體可停留在水中的任意位置。
- (there can be alternative solutions)
 (可能有不同解)

1st layer: soda drink & butterfly pea drink (pinkish purple)
 第一層：雪碧+蝶豆花溶液(紫紅色)

2nd layer: butterfly pea drink (blue)
 第二層：蝶豆花溶液(藍色)

3rd layer: orange juice (yellow)
 第三層：柳橙汁(黃色)

4th layer: fructose (colorless)

第四層：果糖(無色)

5th layer: tapioca ball (brown)

第五層：珍珠(咖啡色)

Question 3

問題3

$$1. \sqrt{2}^2 + \sqrt{2}^2 = 2^2 \text{ [M1]}$$

the hypotenuse of the first right-angled triangle is 2 [A2]

第一個直角三角形的斜邊邊長為 2

$$2. 2^2 + \sqrt{2}^2 = \sqrt{6}^2 \text{ [M3]}$$

the hypotenuse of this second right-angled triangle is $\sqrt{6}$ [A2]

第二個直角三角形的斜邊邊長為 $\sqrt{6}$

3.

Case I 方法一

$$\sqrt{2}^2 + \sqrt{2}^2 = 2^2 \text{ [M1]}$$

$$2^2 + \sqrt{2}^2 = \sqrt{6}^2 \text{ [M1]}$$

$$\sqrt{6}^2 + \sqrt{2}^2 = \sqrt{8}^2 \text{ [M1]}$$

$$\sqrt{8}^2 + \sqrt{2}^2 = \sqrt{10}^2 \text{ [M1]}$$

$$\sqrt{10}^2 + \sqrt{2}^2 = \sqrt{12}^2 \text{ [M1]}$$

$$\sqrt{12}^2 + \sqrt{2}^2 = \sqrt{14}^2 \text{ [M1]}$$

$$\sqrt{14}^2 + \sqrt{2}^2 = \sqrt{16}^2 = 4^2 \text{ [M1]}$$

the hypotenuse of the seventh right-angled triangle is $\sqrt{16} = 4$ [A1]

第七個直角三角形的斜邊長 $\sqrt{16} = 4$

Case II 方法二

The hypotenuse of each right-angled triangle is $\sqrt{4}, \sqrt{6}, \sqrt{8}, \dots$ [M4]

每一個直角三角形的斜邊長為 $\sqrt{4}, \sqrt{6}, \sqrt{8}, \dots$

The hypotenuse of the seventh right-angled triangle is $\sqrt{2 \times 8} = \sqrt{16} = 4$ [A4]

第七個直角三角形的斜邊長為4

4.
 $\sqrt{2(n+1)} = 8$ [M4]
 $2(n+1)=64$ [M1]
 $n+1=32$
 $n=31$

The 31th hypotenuse of right-angled triangle is 8. [A3]
 第31個直角三角形的斜邊長為 8

Question 4

問題 4

1.
 Smaller than 34.3 km [M2]
 小於34.3 km

Couldn't use out the capacity of battery.
 電池不能用到完全沒電 [A2]

2. Suppose line $L : y = ax + b$
 設直線 $L : y = ax + b$

(1) Put (100,58) , (60,34) in line L. [M2]
 將 (100,58) , (60,34) 代入

$$58 = 100a + b$$

$$34 = 60a + b$$

$$24 = 40a, a = \frac{24}{40} = \frac{6}{10} = 0.6 \text{ [M1]}$$

$$58 = 100 \times 0.6 + b, b = -2 \text{ [M1]}$$

so $L : y = 0.6x - 2$ 故 $L : y = 0.6x - 2$
 let $x = 10$ 令 $x = 10$ 代入
 $y = 6 - 2 = 4$ [M2]

When the battery drops to 10% the distance is 4 km. [A2]
 當電量剩10%時,可行駛4km

(2) When the battery drops to 10% the distance is 4 km. [M2]
 當電量剩10%時,可行駛4km

$$22 - 4 = 18 \text{ [A4]}$$

3. The scale is 2.5km of each square
 比例尺一格邊長為2.5 km

Diagonal is $2.5 \times \sqrt{2} \text{ km}$ 對角線長 $2.5 \times \sqrt{2} \text{ km}$

$$\frac{18 \text{ km}}{2.5 \text{ km}} = 7.2 \text{ [M4]}$$

Draw a circle with radius 7.2, the best station for her is station C. [A4]
以 7.2 為半徑作圓，交換站 C 為在到達目的地之前最遠的交換站