山打根育源中学
YU YUAN SECONDARY SCHOOL

2021 初一入学考试
2021 JUNIOR ONE ENTRANCE EXAM

科学
SCIENCE

日期 Date: 11th September 2020

时间 Duration: 1 hour

姓名 Name	: ……..……..…. (英)		…….…… (中)
学校 School	: SJC ……..……	班级 Class :……	座号 Class no. :……

考生须知
INSTRUCTION TO CANDIDATES

1. 这份试卷分为两组： A 组和 B 组
   This paper comprises two sections:

   A 组: 选择题 (60%)
   Section A: Multiple-choice Questions (60%)

   B 组: 简答题 (40%)
   Section B: Subjective Questions (40%)

2. 你须回答这两组所有的试题。
   Answer **all** the questions in both sections.

   A 组部分, 请将所选的答案**涂黑**在答案纸上。
   For Section A, select the correct answer and blacken the circle using a **2B** pencil.

   B 组部分, 请将答案写在横线上面。
   For Section B, write the answers in the space provided in the question.

3. 试卷中的图表是不依据实际尺寸画的,除非另作说明。
   The diagrams in the questions are not drawn to scale unless otherwise stated.

4. 此试卷共有 16 页。
   This question paper consists of 16 printed pages.

未经正式宣布　不得翻阅内页
DO NOT TURN OVER THIS PAGE UNTIL YOU ARE INSTRUCTED TO DO SO

A 组: 选择题 (60%)

SECTION A: MULTIPLE CHOICE QUESTIONS (60%)

每题附有 **A, B, C** 和 **D** 四个选项,只须选一个答案。
Each question is followed by four options **A, B, C** *and* **D**. *Choose only one answer.*

1. 图 1 的动物根据外形特征来归类。
The animals in Diagram 1 are classified according to their external characteristics

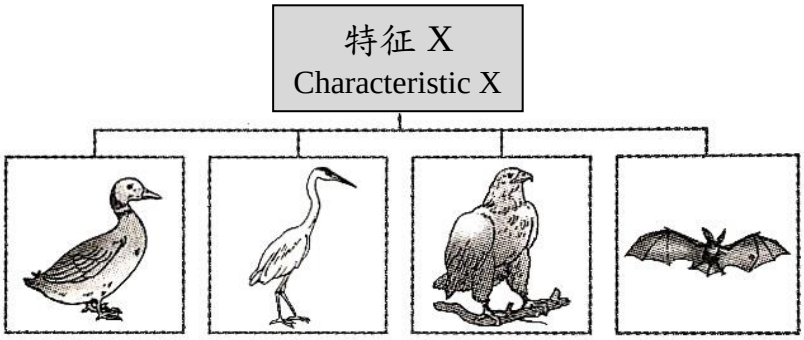


图 1
Diagram 1

特征 X 是什么？
What is characteristic X?

A 有喙
With beak

B 有蹼
With web

C 有翅膀
With wings

D 有羽毛
With feather

2. 图 2 显示小明进行的一项实验。
Diagram 2 shows an experiment carried out by Xiao Ming.

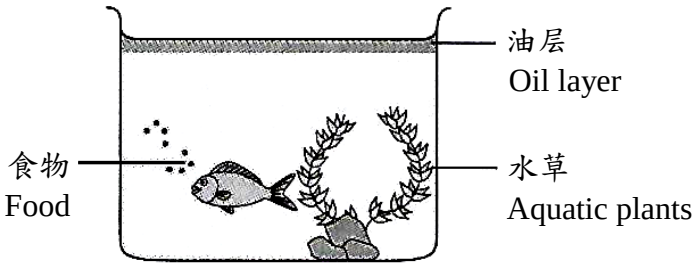


图 2
Diagram 2

三天后，鱼儿死了。为什么会这样？
Three days later, the fish died. Why is this happening?

A 鱼儿缺少阳光
The fish lacks sunlight

B 鱼儿缺少食物
The fish lacks food

C 鱼儿缺少空气
The fish lacks air

D 鱼儿缺少水分
The fish lacks water

3. 下面显示人类的基本需求。
Below shows the basic requirements of human.

R : 促进细胞新陈代谢作用 Promote cell metabolism	S : 促进成长和发育 Promote growth and development
T : 调节体温 Regulate body temperature	U : 免受日晒雨淋 Protect from the sun and rain

以下哪项可代表 R, S, T 和 U?
Which of the following can represent R, S, T and U?

	R	S	T	U
A	空气 Air	庇护所 Shelter	水分 Water	食物 Food
B	水分 Water	食物 Food	空气 Air	庇护所 Shelter
C	空气 Air	食物 Food	水分 Water	庇护所 Shelter
D	水分 Water	食物 Food	庇护所 Shelter	空气 Air

4. 皮肤是人类的排泄器官。它排泄什么废物？
The skin is the human excretory organ. What waste does it excrete?

A 氧气 + 水分
Oxygen + water

B 二氧化碳 + 汗液
Carbon dioxide + sweat

C 二氧化碳 + 水分
Carbon dioxide + water

D 水分 + 尿素 + 矿物盐
Water + urea + mineral salts

5. 图 3 显示人体的呼吸系统。
空气会从 P 处流入 _____ 。

Diagram 3 shows the human respiratory system.
Air will flow into the _____ from P.

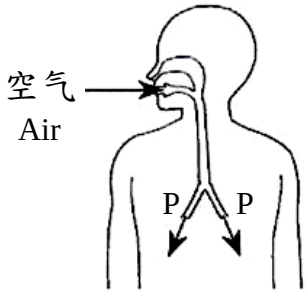


图 3
Diagram 3

A 横隔膜
diaphragm

B 气管
trachea

C 鼻腔
nasal cavity

D 肺
lungs

6. 图 4 显示在实验室裡长达一星期的实验。
Diagram 4 shows a week-long experiment in the laboratory.

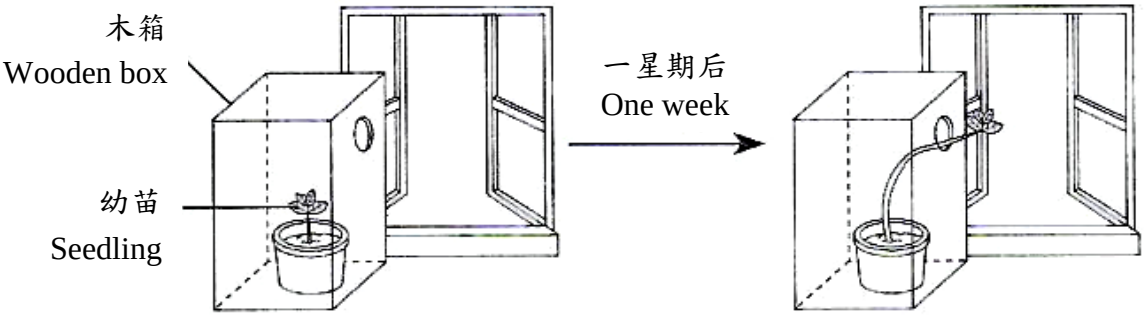


图 4
Diagram 4

这个实验的结论是什么？
What is the conclusion of this experiment?

A 植物需要阳光
Plants need sunlight

B 植物会对阳光作出反应
Plants respond to sunlight

C 植物会对空气作出反应
Plants respond to air

D 植物的根会对水分作出反应
The roots of plants respond to water

7. 图 5 显示动物 X。
Diagram 5 shows animal X.

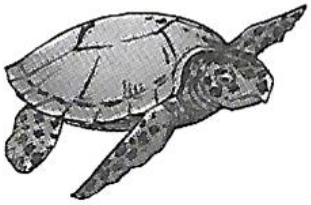


图 5
Diagram 5

下面哪项是动物 X 确保其物种继续生存的方法？
Which of the following is the way for animal X to ensure the continued survival of its species?

I 用沙覆盖卵 Covered the eggs with sand	II 在夜间上岸产卵 Landing at night to lay eggs
III 产下大量的卵 Laid a lot of eggs	IV 在卵旁守候 Waiting by the eggs

A I, II, III

B I, II, IV

C I, III, IV

D II, III, IV

8. 图 6 显示一种微生物。
Diagram 6 shows a microorganism.

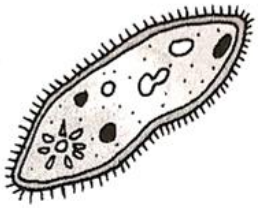
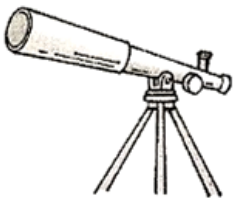


图 6
Diagram 6

我们无法用肉眼看得见图中的微生物。下面那种工具可以帮助我们解决问题？
We cannot see the microorganisms in the picture with the naked eye. Which of the following tools can help us solve the problem?

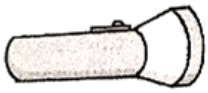
A



B

C

D



9. 图 7 表显示两只动物。
Diagram 7 shows two animals.

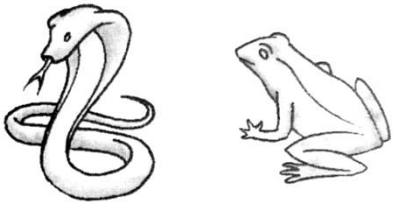


图 7
Diagram 7

请说出上图两只动物的相互关系。
Name the interaction happened between the two animals in the diagram above.

A 竞争关系
Competition

B 寄生关系
Parasitism

C 捕猎关系
Prey-predator

D 共生关系
Symbiosis

10. 图 8 显示轮船漏出污油。
Diagram 8 shows an oil spill from a ship.

上述的意外将会引起什么后果？
What are the consequences of the above accidents?

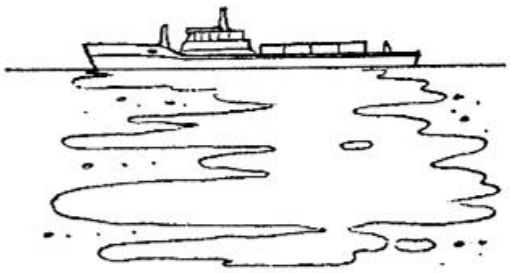


图 8
Diagram 8

A 海洋生物的生命会受到威胁
The lives of marine life will be threatened

B 海洋生物的繁殖率增加
Increased reproduction rate of marine life

C 海洋生物的死亡率下降
Decreased mortality of marine life

D 海洋生物的经济价值提高
Increased economic value of marine life

11. 图 9 显示一项实验的过程。
Diagram 9 shows the process of an experiment.

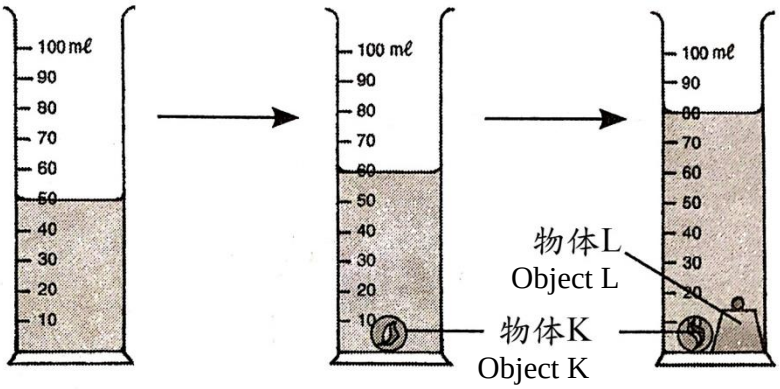


图 9
Diagram 9

下面哪些说明是正确的？
Which of the following below are correct?

I 物体 K 和 L 都是液体。
Both object K and L are liquids.

II 物体 K 和 L 都占据空间。
Both object K and L occupy space.

III 物体 K 的体积比物体 L 大。
Object K has a bigger volume than object L.

IV 物体 L 的体积比物体 K 大。
Object L has a bigger volume than object K

A I, II

B I, III

C II, IV

D III, IV

12. 图 10 显示一个无规律形状。
Diagram 10 shows an irregular shape.

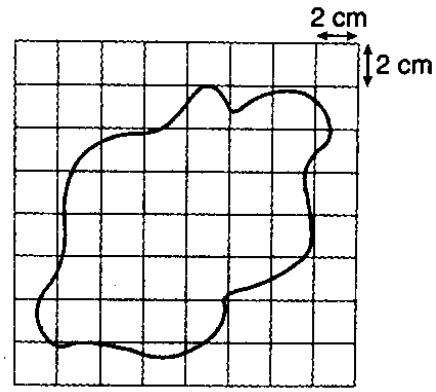


图 10
Diagram 10

试找出它的面积。
What is the area of the irregular shape?

A 29 cm^2

B 58 cm^2

C 112 cm^2

D 160 cm^2

13. 图 11 显示一项实验。
Diagram 11 shows an experiment.

图 11
Diagram 11

从实验中能作出什么结论？
What conclusions can be drawn from the experiment?

A 摩擦会磨损物体的表面
Friction will wear the surface of the object

B 摩擦力阻碍了物体的移动
Friction hinders the movement of objects

C 油减少了手与玻璃杯之间的摩擦力
The oil reduces the friction between the hand and the glass

D 女孩需要费更多力才能把玻璃杯抓紧
The girl needs more effort to hold the glass tightly

14. 以下哪项显示电热水壶的能量变化？
Which of the following shows the energy change of an electric kettle?

A 电能 → 动能
Electrical energy → kinetic energy

B 电能→热能
Electrical energy → heat energy

C 化学能 → 热能
Chemical energy → heat energy

D 热能 → 电能
Heat energy → electrical energy

15. 下列哪项陈述**不**正确？
Which of the following statements is **not** true?

A 一个发光的灯泡散发出热量
A lighted bulb gives out heat energy

B 太阳发出光能
The Sun gives out light energy

C 放在桌子上的球具有动能
A ball resting on a table possesses kinetic energy

D 伸展的橡皮筋具有势能
A stretched rubber band possesses potential energy

16. 以下哪些是可再生能源？
Which of the following are renewable energy sources?

I 太阳能 Solar energy	II 煤炭 Coal	III 石油 Petroleum
IV 生物质 Biomass	V 风能 Wind power	VI 核能 Nuclear energy

A I , V

B II, III

C I, IV, V

D II, III, IV

17. 哈山在水中观察到一条鱼，如图 12 所示。鱼实际上位于哪个位置？

Hassan observes a fish in the water as shown in Diagram 12. At which position is the fish actually located?

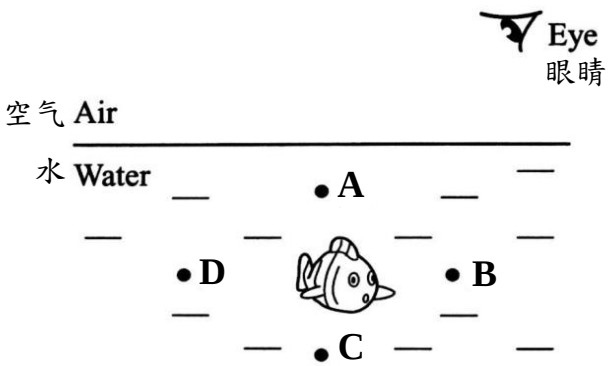


图 12
Diagram 12

18. 图 13 显示一名老人在进行的活动。
Diagram 13 shows an old man's activity.

下面哪项有关上述活动的说明是**正确**的？
Which of the following statements about the above activities is **correct**?

图 13
Diagram 13

A 力可以改变物体的形状
Force can change the shape of an object

B 力可以移动静止的物体
Force can move stationary objects

C 力可以减缓物体移动的速度
Force can slow down the speed of object movement

D 力可以增快物体移动的速度
Force can increase the speed at which objects move

19. 下午 3:00pm，伟明开始以 20 km/h 的速度骑自行车去图书馆。当他到达目的地时，时间是 3:24 pm。计算男孩走过的距离。

At 3.00 pm, Wei Ming started to cycle at 20 km/h to a library. When he reached his destination, the time was 3:24 pm. Calculate the distance travelled by the boy?

速度 $= \frac{\text{距离}}{\text{时间}}$	Speed $= \frac{\text{Distance}}{\text{Time}}$

A 8 km

B 11 km

C 14 km

D 20km

20. 下面哪项是**正确**的？
Which of the following is **correct**?

	形态的变化 **Change of state**	过程 **Process**	能量变化 **Change of energy**
I	固体→液体 Solid → liquid	凝固 Freezing	散热 Heat is released
II	固体→液体 Solid → liquid	融化 Melting	受热 Heat is absorbed
III	固体→气体 Solid → gas	沸腾 Boiling	受热 Heat is absorbed
IV	气体→液体 Gas → liquid	凝聚 Condensation	散热 Heat is released

A I, III

B II, IV

C I, II, IV

D II, III, IV

21. 下面哪项搭配是**正确**的？
Which of the following combinations is **correct**?

	天然材料 **Natural material**	人造材料 **Artificial material**
A	雨衣 Raincoat	皮鞋 Leather shoe
B	金戒指 Gold ring	鱼网 Fish net
C	铁钉 Iron nail	铜线 Copper wire
D	塑料瓶 Plastic bottle	木塞 Cork

22. 图 14 显示两种物体, X 和 Y。
Diagram 14 shows two substances, X and Y.

X

Y

图 14
Diagram 14

制造物品 X 和 Y 的材料必须具备什么物理性质？
Which physical property must the materials used to make substance X and substance Y possess?

A 有弹性
Elasticity

B 能导热
Ability to conduct heat

C 能透光
Ability to transmit light

D 能吸水
Ability to absorb water

23. 下面是物质 P 的性质。
The properties of substance P are as shown below.

- 有质量 Has mass
- 有一定的形状 Has definite shape
- 有一定的体积 Has definite volume

物质 P 可能是…
Substance P could be …

A 水蒸气
Water vapour

B 玻璃瓶
Glass bottle

C 牛奶
Milk

D 食油
Cooking oil

24. 图 15 显示一个实验设置。
Diagram 15 shows an apparatus set-up.

图 15
Diagram 15

哪项物质可运用图 15 所显示的方法分离？
Which of the following substances can be separated by using the method as shown in Diagram 15?

A 盐和水
Salt and water

B 油和水
Oil and water

C 盐水和沙
Salt solution and sand

D 盐和糖
Salt and sugar

25. 下面的资料显示蓝色石蕊试纸被浸入三种液体后的结果。
The following information shows the results obtained after blue litmus paper is immersed in three different liquids.

- X – 蓝色石蕊试纸的颜色保持不变。
  X – The colour of blue litmus paper remains unchanged.
- Y – 蓝色石蕊试纸变成红色。
  Y – The blue litmus paper turns red.
- Z – 蓝色石蕊试纸变成红色。
  Z – The blue litmus paper turns red.

X, Y 和 Z 有可能是什么？
What could be X, Y and Z?

	X	Y	Z
A	洗涤剂 Detergent	汽水 Carbonated drinks	番茄酱 Tomato sauce
B	食油 Cooking oil	漂白剂 Bleach	肥皂水 Soap water
C	苹果汁 Apple juice	醋 Vinegar	糖水 Sugar solution
D	柠檬汁 Lemon juice	橙汁 Orange juice	盐水 Salt solution

26. 图 16 显示一个铁制奖杯。
Diagram 16 shows a trophy which is made from iron.

图 16
Diagram 16

下列哪个方法适合防止该奖杯生锈？
Which of the following methods is suitable to prevent the trophy from rusting?

A 油漆
by painting

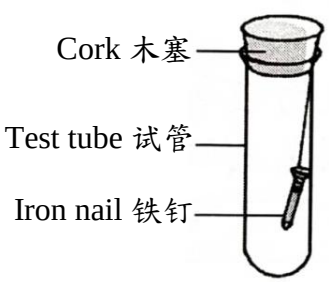
B 包裹塑料
by wrapping with plastic

C 涂润滑油
by applying lubricating oil

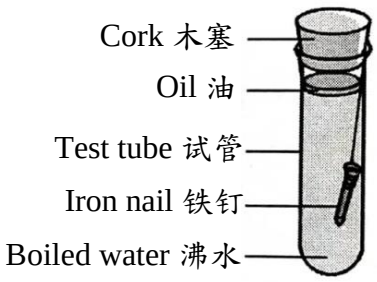
D 镀不锈金属
by electroplating with stainless metal

27. 一个月后以下哪些铁钉会生锈？
Which of the following iron nails will rust after one month?

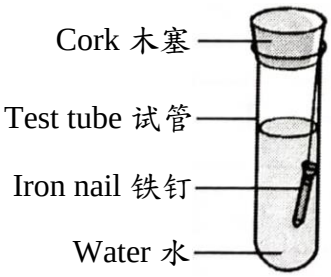
I



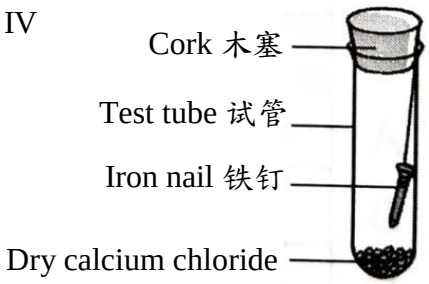
II



III



IV



A I, II

B I, III

C II, III

D II, IV

28. 图 17 显示 4 种木块的结构。
A few wooden blocks are arranged to make the structures as shown in Diagram 17.

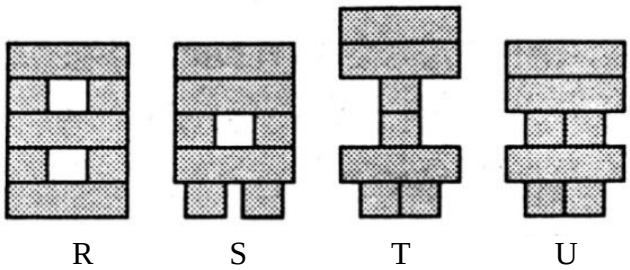


图 17
Diagram 17

以最不稳定至最稳定的顺序排列以上 4 个结构。
Arrange the structures from the least stable to the most stable.

A R, S, U, T

B T, U, S, R

C S, R, U, T

D U, S, R, T

29. 图 18 显示月球绕着地球运转的情况。
Diagram 18 shows how the Moon orbits around the Earth.

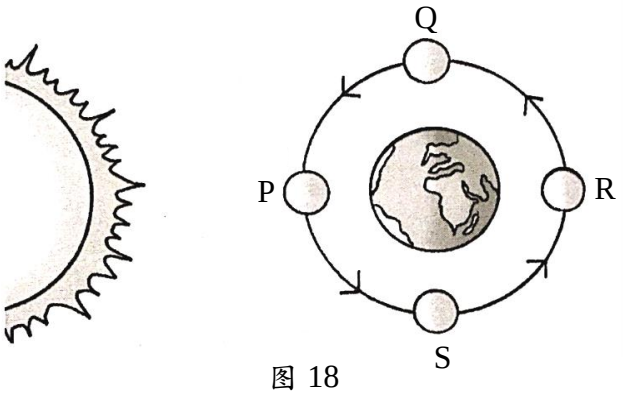


图 18
Diagram 18

发生日食时，月球处于哪个位置？
During solar eclipse, where will the position of the Moon be?

A P

B Q

C R

D S

30. 地球公转一周需时_____.
Earth takes _____ to complete one revolution.

A 24 小时
24 hours

B 29 天
29 days

C 365.4 天
365.4 days

D 3 个月
3 months

B 组: 简答题 (40%)
SECTION B: SUBJECTIVE QUESTIONS (40 %)

这组有 4 个试题。把答案写在横线上。

There are 4 questions in this section. Write the answers in the space provided.

1. 图 19 显示在稻田里的生物。
Diagram 19 shows the organisms living in a rice field.

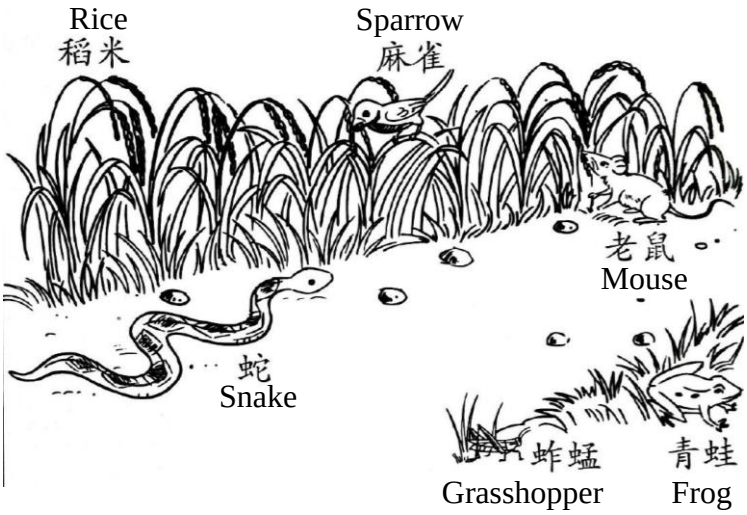


图 19
Diagram 19

(a) 根据图 19 栖息地的生物,绘制一个食物网。 [4]
Draw a food web based on the organisms in Diagram 19.

(b) 如果稻米因干旱而枯萎, 预测对动物数量的影响。 [2]
If rice wilts due to drought, predict the impact on the animal population.

……

(c) 如果有更多的蛇迁移到这个栖息地, 预测这个栖息地的生物数量。
If more snakes migrate into this habitat, predict the number on the following organisms in this habitat.

(i) 老鼠 mouse: …… [2]

(ii) 蚱蜢 grasshopper: …… [2]

2. 一组学生进行如图 19 的实验。他们将三个盛水的烧瓶加热，三个烧瓶分别加入了 5g、15g、和 25g 的食盐。
A group of students conducted the experiment as shown in Diagram 19. They heated three flasks containing water, and the three flasks were filled with 5g, 15g, and 25g salt respectively.

表 1 显示实验结果。
Table 1 shows the results of the experiment.

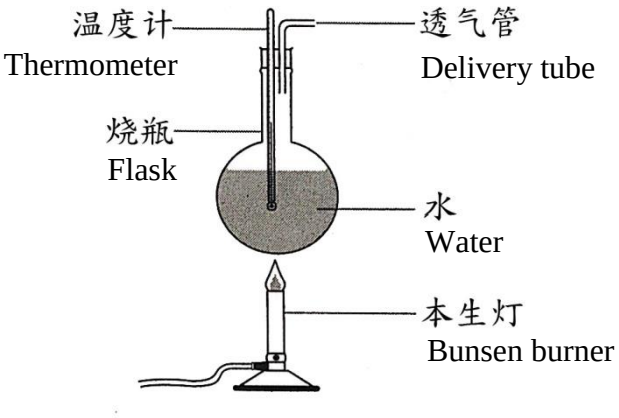


图 19
Diagram 19

水中的食盐分量 Amount of salt in the water (g)	水沸腾时的温度 Temperature when the water boils (°C)
5	101
15	101.5
25	102

表 1
Table 1

(a) 这项实验的目的是什么？ [2]
What is the purpose of this experiment?

……

(b) 写出：
Write down:

(i) 在这项实验中必须改变的事项 (操纵性变数), [2]
Things that must be changed in this experiment (manipulative variables),

……

(ii) 在这项实验中必须观察的事项 (反应性变数), [2]
Things that must be observed in this experiment (reactive variables),

……

(iii) 在这项实验中必须保持不变的事项 (固定性变数). [2]
Things that must remain constant in this experiment (fixed variables).

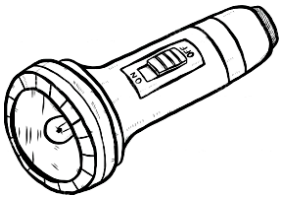
……

(c) 如果水中含有 35g 的食盐， 预测水沸腾时的温度。 [2]
If the water contains 35g of table salt, predict the temperature when the water boils.

……

3. 当小明的家停电时，他使用手电筒。他察觉手电筒的光线昏暗。

Xiao Ming used a torchlight when there was a black out at his home. He found that light from the torchlight was dim.



(a) 建议一个可增加手电筒亮度的方法。 [2]

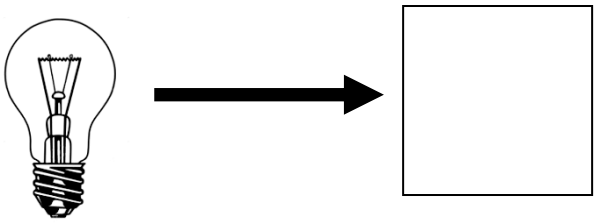
Suggest one way to increase the brightness of the torchlight.

……

……

(b) 在空格中绘制灯泡的符号。 [2]

Sketch the symbol of bulb in the space provided.



(c) 一组学生进行一个实验，表二显示灯泡在电路 P, Q 和 R 不同的亮度。

Table 2 shows an investigation carried out by a group of students. The brightness of the bulb from circuits P, Q and R are observed.

Number of dry cell 干电池的数量	**Brightness of bulb 灯泡的亮度**
1	Bright 亮
2	Brighter 比较亮
3	Brightest 最亮

表二

Table 2

写出：

State:

(i) 在这项实验中的固定性变数： [2]

The manipulated variable in this experiment

……

(ii) 在这项实验中的反应性变数: [2]

The responding variable in this experiment

……

(ii) 这项实验的结论. [2]

One conclusion based on the situation above.

……

4. 图 20 显示大卫进行一项实验。他将两个大小相同，但摆放方式不同的塑料杯放在桌上，然后用扇子在距离 30 cm 处扇风，并观察塑料杯倒下的次序。

Diagram 20 shows David is conducting an experiment. He placed two plastic cups of the same size but different orientation. He fans the cups at a distance of 30 cm and observes the order of the plastic cups toppling.

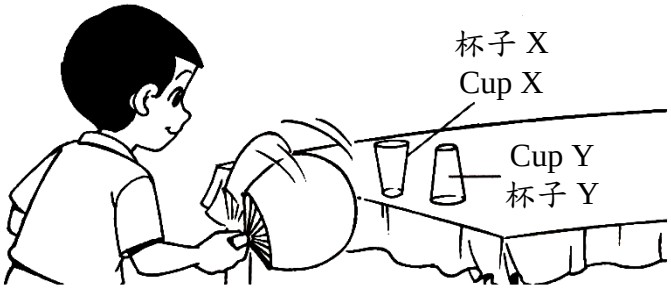


图 20
Diagram 20

(a) (i) 根据上述的实验，预测先倒下的杯子。 [2]
Based on the above experiment, predict which cup will topple first.

……

(ii) 根据 4(a)(i) 项的答案，写出一的推断。 [2]
Based on the answer in 4(a)(i), write an inference.

……..

(iii) [2]

物体的高度会影响物体的平稳性。 The height of the object will affect its stability.

写出上述说明收集到的两个资料之间的一个关系。
Write a relationship between the two data collected from the above experiment.

……..……..

(b) 图 21 显示两种类型的车辆。 [4]
Diagram 21 shows two types of vehicle.

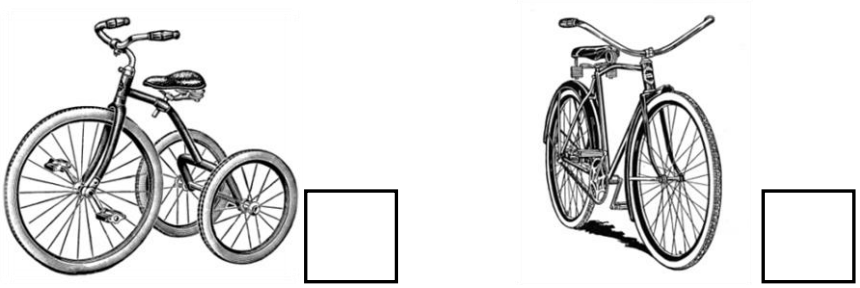


图 21
Diagram 3

哪种类型是更稳定的模型？请画✓。请说明原因。
Tick (✓) the model that is more stable. Give one reason for your choice.

……...……..

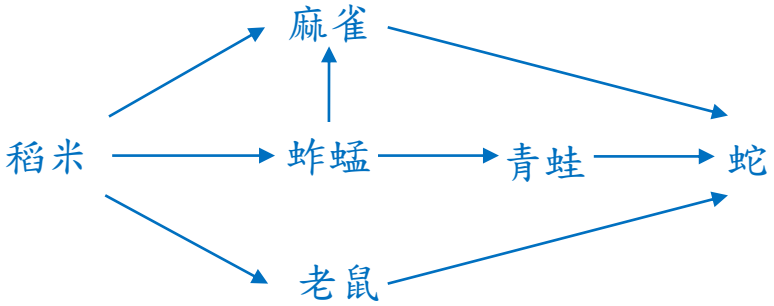
参考答案
Model Answer

A 组: 选择题 (60%)
SECTION A: MULTIPLE CHOICE QUESTIONS (60%)

1.	C	6.	B	11.	C	16.	C	21.	B	26.	D
2.	C	7.	A	12.	C	17.	C	22.	A	27.	B
3.	C	8.	B	13.	C	18.	A	23.	B	28.	B
4.	D	9.	C	14.	B	19.	A	24.	C	29.	A
5.	D	10.	A	15.	C	20.	B	25.	A	30.	C

B 组: 简答题 (40%)
SECTION B: SUBJECTIVE QUESTIONS (40 %)

1. (a) [4]



(b) 动物的数量将减少。 [2]
Number of animals reduces.

(c) (i) 老鼠 mouse: 减少 Decreases [2]
(ii) 蚱蜢 grasshopper: 增加 Increases [2]

2. (a) 为了研究水中的食盐分量与水沸腾时的温度之间的关系。 [2]
To investigate the relationship between the amount of salt in the water and the temperature when the water boils.

(b) (i) 水中的食盐分量/ Amount of salt in the water [2]

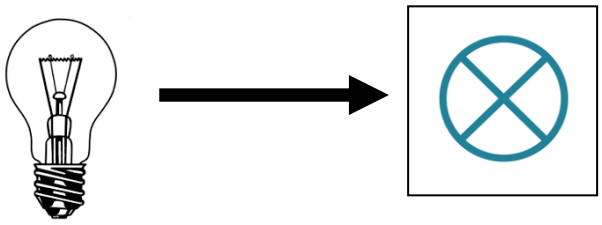
(ii) 水沸腾时的温度/ Temperature when the water boils [2]

(iii) 烧瓶的大小/ 水的分量/ 食盐的种类 [2]
Size of flask/ Amount of water/ Types of salts

(c) 103°C. [2]

3. (a) 更换干电池 Replace / change the dry cell [2]

(b) [2]



(c) (i) 干电池的数量 Number of dry cell [2]

(ii) 灯泡的亮度 Brightness of bulb [2]

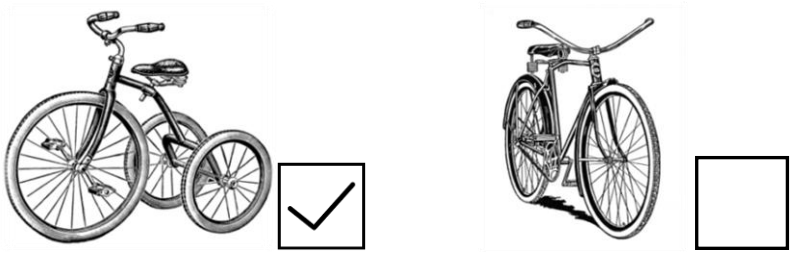
(ii) 干电池的数量越多，灯泡的亮度越强 [2]
As the number of dry cell increases, the brightness of the bulb increases

4. (a) (i) 杯子 X Cup X [2]

(ii) 杯子 X 的摆放方式使其底部面积较小，所以较不平稳 [2]
The way cup X is placed is having a smaller bottom area, hence, cup X is more unstable.

(iii) 物体越高/低，越不平稳/平稳 [2]
The higher/ lower the object, the less stable/ more stable is the object.

(b) [4]



它的底部面积较大/ It has a larger base area.