

1. 下述有句话, 对**科学**描述是不正确的, 请示之:

- (a) 是根据信心
- (b) 是根据证据
- (c) 是自我改正
- (d) 是建立于从前所学科学知识
- (e) 除 (a) 外, 以上皆是

One of the following statements that does not correctly describe Science; please point out the statement.

- (a) is based on faith.
- (b) is based on evidence.
- (c) is self-correcting.
- (d) builds on what has been learned earlier in science subject
- (e) all of the above, except (a).

2. 当冰在溶化时, 下述哪句话是不正确的, 请示之:

- (a) 氢键皆断
- (b) 水分子变得不那么紧密包装
- (c) 水密度变得比较小
- (d) 共价键形成
- (e) 以上皆是

When ice melts, which statement is not right?

- (a) hydrogen bonds are broken.
- (b) water molecules become less tightly packed.
- (c) the water becomes less dense.
- (d) covalent bonds form.
- (e) it turns into water eventually.

3. 可以将单糖连接一起的反应过程称为脱水合成 (dehydration synthesis), 在这反应过程中, 下面的叙述何者正确?

- (a) 其中一个单体 (monomer) 失去一个氢原子, 另外一个单体失去一组氢氧根
- (b) 电子分布在被连接之单体的原子中
- (c) 当单体在连接过程时, 水分子 (H_2O) 会形成
- (d) 在单体中会形成共价键
- (e) 以上皆是

Monosaccharides can be joined together by a process called dehydration synthesis.

Which of the following statements is true of this process?

- (a) One monomer loses a hydrogen atom and the other loses a hydroxyl group.
- (b) Electrons are shared between atoms of the joined monomers.
- (c) H₂O is formed as the monomers are joined.
- (d) Covalent bonds are formed between the monomers.
- (e) All of the above are true.

4. 多肽 (polypeptide) 之四级构造是代表

- (a) 它自己的大小
- (b) 折迭片 (pleated sheet)
- (c) 由何种的氨基酸所制造
- (d) 它自己的三度空间构造
- (e) 所含有 R 根基 (R-group) 的数目

The tertiary structure of a polypeptide refers to one of the following statements, please point out the statement.

- (a) its size.
- (b) the presence of pleated sheets.
- (c) which type of amino acid is made of.
- (d) its three-dimensional structure.
- (e) the number of R groups contains.

5. 一个细胞如被某一物质毒害时, 会降低细胞高尔氏体之活性, 这个细胞会立刻遇到下列何种的困难:

- (a) 分泌抗体 (secreting antibodies)
- (b) 吸收养分 (absorbing nutrients)
- (c) 消化脂质 (digesting fats)
- (d) 个体移动 (moving)
- (e) 光合作用 (photosynthesizing)

When a living cell is poisoned by a substance, the cell will inactivate the Golgi apparatus which immediately causes the following difficulty. Please indicate it:

- (a) secreting antibodies.
- (b) absorbing nutrients.
- (c) digesting fats.
- (d) moving.
- (e) photosynthesizing.

6. 下列何種反應是吸熱 (endergonic) 反應?

- (a) 燃燒木头
- (b) 从葡萄糖分解时所释放的热量
- (c) 经由二氧化碳及水分子合成葡萄糖的过程
- (d) 分解葡萄糖而形成 ATP 时
- (e) 细胞呼吸时

Which of the following processes is endergonic?

- (a) the burning of wood.
- (b) the release of heat from breakdown of glucose.
- (c) the synthesis of glucose from carbon dioxide and water.
- (d) the breakdown of glucose to power ATP formation.
- (e) cellular respiration.

7. 如果你现在是在大西洋海上漂流，因为口渴而喝了身边的海水，结果

- (a) 你会解渴
- (b) 因为过量的盐份进入体内而使你的细胞溶解
- (c) 你的细胞变成肿胀
- (d) 你自己本身脱水
- (e) 你的细胞不会皱缩 (plasmolysis)

If you are adrift in the Atlantic Ocean and drink the surrounding seawater due to thirsty, What would be the consequence?

- (a) you slake your thirst.
- (b) your cells lyse, due to the excessive intake of salt.
- (c) your cells become turgid.
- (d) you dehydrate yourself.
- (e) your cells undergo plasmolysis.

8. 一种药物在实验室中测试时，发现在细胞内粒腺体的双层膜上产生破口，科学家猜测此药物对人体细胞将会有害，因为它会抑制细胞的

- (a) 克雷伯氏循环 (the Kreb's cycle)
- (b) 电子转移系统 (electron transfer system)
- (c) 糖解反应 (glycolysis)
- (d) 酒精的形成
- (e) (a) 与 (b) 皆对

A drug is tested in the laboratory and found that it is able to create holes in mitochondrial membranes. Scientists suspect that the drug will be harmful to human cells because it will inhibit

- (a) the Kreb's cycle.
- (b) chemiosmosis.
- (c) glycolysis
- (d) the formation of alcohol.
- (e) Both (a) and (b).

9. 为何大部份的植物叶子都是绿色?

- (a) 因叶绿素反射绿光
- (b) 因叶绿素吸收绿光
- (c) 因叶绿素基本上使用绿光作为光合作用的能量来源
- (d) 绿色是最好的光线作为植物的生长
- (e) 因类胡萝卜素 (carotenoids) 反射绿光

Leaves of plants are normally green in color, because :

- (a) chlorophyll reflects green light
- (b) chlorophyll absorbs green light.
- (c) chlorophyll primarily uses green light as the source of energy for photosynthesis.
- (d) green is the best color light for plant growth.
- (e) carotenoids reflect green light.

10. “雄性蜜蜂是没有父亲的” 这句叙述是代表甚么意思?

- (a) 雄性蜜蜂在抚养年幼蜜蜂之事上不扮演任何角色
- (b) 雄性蜜蜂由卵直接发育而成
- (c) 雄性蜜蜂由受精卵直接发育而成
- (d) 雄性蜜蜂由非受精卵直接发育而成
- (e) 蜂后的伴侣在雄卵孵化前就死亡

What is meant by the statement that “male bees are fatherless”?

- (a) male bees do not play a role in rearing of young bees.
- (b) male bees develop from eggs.
- (c) male bees develop from fertilized eggs.
- (d) male bees develop from unfertilized eggs.
- (e) the queen bee's mate dies before the male eggs hatch.

11. 在大部份可感染植物的病毒中所发现的遗传物质为何?

- (a) 甚么都没有
- (b) RNA
- (c) DNA and RNA 两者皆有
- (d) 单股 (single-stranded) DNA
- (e) 双股 (double-stranded) DNA

Please point out the genetic material in viruses that infect plants?

- (a) none
- (b) RNA
- (c) both DNA and RNA
- (d) single-stranded DNA
- (e) double-stranded DNA

12. 下列何种生物体 (organism) 可用作大量生产基因产品之用?

- (a) 细菌 (bacteria)
- (b) 酵母菌 (yeasts)
- (c) 哺乳动物细胞 (mammalian cells)
- (d) 以上皆是
- (e) 以上皆非

Which of the following organisms are used for mass-production of gene products?

- (a) bacteria
- (b) yeasts
- (c) mammalian cells
- (d) all of the above
- (e) none of the above

13. 下列何种方法能够使用在产前筛检特定遗传失调 (genetic disorders) 之用?

- (a) 羊膜穿刺术 (amniocentesis)
- (b) 血型测定法 (blood typing)
- (c) 绒毛膜采样术 (chorionic villi sampling)
- (d) 胎儿心跳监控法 (fetal heart rate monitoring)
- (e) (a) 与 (c) 皆对

Which of the following methods can be used to screen for certain genetic disorders before birth?

- (a) amniocentesis
- (b) blood typing
- (c) chorionic villi sampling
- (d) fetal heart rate monitoring
- (e) both (a) and (c)

14. 一个族羣 (population) 是指

- (a) 在特定环境中所需求的最小个体数 (individuals), 以维持一个可变的基因库 (gene pool)
- (b) 能够演化的最小单位
- (c) 在同一的时间中, 住在相同地点的同种(species) 个体组
- (d) 多个羣聚 (community) 的组合
- (e) (b) 与 (c) 皆对

A population is defined as

- (a) the minimum number of individuals required to maintain a varied gene pool in a given environment.
- (b) the smallest unit that can evolve.
- (c) a group of individuals of the same species living in the same place at the same time.
- (d) a collection of communities.
- (e) both (b) and (c)

15. 下列何者为脊椎动物的特征?

- (a) 有头骨
- (b) 由骨头组成的骨骼
- (c) 主干含有脊椎
- (d) 以上皆是
- (e) (a) 与 (c) 皆对

Which of the following is the characteristic of vertebrates?

- (a) a skull.
- (b) a skeleton made of bone.
- (c) a backbone consisting of vertebrae.
- (d) all of the above.
- (e) both (a) and (c).

16. 在所有类型的上皮组织中的一种重要功能是

- (a) 感觉 (sensation)
- (b) 支撑 (support)
- (c) 收缩 (contraction)
- (d) 覆盖表面 (covering surfaces)
- (e) 吸收 (absorption)

A main function of all types of epithelial tissue is

- (a) sensation
- (b) support
- (c) contraction
- (d) covering surfaces
- (e) absorption

17. 下列何種物質**不會**引起胃炎 (gastritis)?

- (a) 烟草 (tobacco)
- (b) 食盐 (salt)
- (c) 氨基酸 (amino acids)
- (d) 咖啡因 (caffeine)
- (e) 酒精 (alcohol)

Which of the following substances does not promote gastritis?

- (a) tobacco
- (b) salt
- (c) amino acids
- (d) caffeine
- (e) alcohol

18. 为甚么动物需要不断供应氧气的主要基本原因是因为

- (a) 需要制造二氧化碳
- (b) 没有氧气动物就不能合成蛋白质
- (c) 没有氧气动物就不能处理二氧化碳
- (d) 没有氧气，动物就不能从它们的食物中得到足够的能量
- (e) 需要进行糖解反应

The most basic reason that animals need a continuous supply of oxygen is because

- (a) it is needed to make carbon dioxide.
- (b) without it, animals cannot synthesize protein.
- (c) without it, animals cannot dispose of carbon dioxide.
- (d) without it, animals cannot obtain enough energy from their food.
- (e) it is needed to carry out glycolysis.

19. 心脏输出量 (cardiac output) 之定义为
- (a) 每分钟从心脏排出之血液容量
 - (b) 每分钟从左心房 (left atrium) 排出之血液容量
 - (c) 每分钟从右心房 (right atrium) 排出之血液容量
 - (d) 每分钟从左心室 (left ventricle) 排出之血液容量
 - (e) 每分钟从右心室 (right ventricle) 排出之血液容量

The cardiac output is defined as

- (a) the volume of blood pumped by the heart each minute.
- (b) the volume of blood pumped by the left atrium each minute.
- (c) the volume of blood pumped by the right atrium each minute.
- (d) the volume of blood pumped by the left ventricle each minute
- (e) the volume of blood pumped by the right ventricle each minute.

20. 下列何者叙述有关出汗 (sweating) 是错误的?
- (a) 水分丧失通常是排汗时所连带的主要问题
 - (b) 我们在排汗时所丧失的主要离子是钠和氯离子
 - (c) 汗水比其它身体的体液更加稀释
 - (d) 在丧失水分之前, 排汗所引起的离子丧失, 已经是一个问题了
 - (e) 人类甚至在一个非常冷的日子中能排汗

Which of the following statements about sweating is false?

- (a) Water loss is usually the main problem associated with sweating.
- (b) The main ions lost in sweat are sodium and chloride.
- (c) Sweat is much more dilute than other body fluids.
- (d) Ion losses associated with sweating become a problem before water losses.
- (e) People can sweat even on a very cold day.

21. 在怀孕时期, 下列什么时段, 对胎儿的发育, 进行最多而且最激烈的改变?
- (a) 第一周
 - (b) 第一个三个月 (first trimester.)
 - (c) 第二个三个月 (second trimester)
 - (d) 第三个三个月 (third trimester)
 - (e) 第九个月

During which of the following periods of gestation does a developing human undergo the most numerous and most radical changes?

- (a) first week.
- (b) first trimester.
- (c) second trimester
- (d) third trimester
- (e) ninth month

22. 固氮作用 (nitrogen fixation) 包含

- (a) 将氨 (ammonium) 转变成硝酸盐 (nitrate)
- (b) 将硝酸盐 (nitrate) 转变成氨 (ammonium)
- (c) 从分解的有机物质中产生氨 (ammonium)
- (d) 将 N_2 转变成氨 (ammonium)
- (e) 将 N_2 转变成氨 (ammonium) 或硝酸盐 (nitrate)

Nitrogen fixation consists of

- (a) the conversion of ammonium to nitrate.
- (b) the conversion of nitrate to ammonium.
- (c) the production of ammonium from decomposing organic matter.
- (d) the conversion of N_2 to ammonium
- (e) the conversion of N_2 to ammonium or nitrate

23. 目前影响生物圈 (biosphere) 主要环境问题的根本原因是

- (a) 臭氧层空洞 (the ozone hole)
- (b) 人口数增长 (human population grow)
- (c) 全球暖化 (global warming)
- (d) 危险废弃物的处理 (hazardous waste disposal)
- (e) 空气和水污染 (air and water pollution)

The root cause of the major environmental problems currently affecting the biosphere is

- (a) the ozone hole.
- (b) human population grow.
- (c) global warming.
- (d) hazardous waste disposal.
- (e) air and water pollution.

24. 在下列情形中，你们与 100,000 年前的人类祖先最大的差别是？

- (a) 你们更有智慧
- (b) 你们使用更多语言
- (c) 你们会使用更多工具
- (d) 你们可以得到大量储藏累积的智识
- (e) 以上皆是

In which of the following ways do you differ greatly from your ancestors of 100,000 years ago?

- (a) You are more intelligent.
- (b) You use language.
- (c) You use tools.
- (d) You have access to a larger store of accumulated knowledge.
- (e) All of the above.

25. 下述有一句话对棕油的描述是不正确的，请示之。

- (a) 棕油是一种不饱合油
- (b) 它含有维生素 E
- (c) 它比玉米油的沸点高
- (d) 它很适用作为煎炸用途
- (e) 它对我国的经济贡献很多

One of the following statements describes palm oil is false. Please point out the statement.

- (a) Palm oil is unsaturated oil.
- (b) It contain vitamin E.
- (c) It is a high boiling oil compared to corn oil
- (d) It is good for deep fried purpose
- (e) It contributes a great deal to our national economy.

題號	1	2	3	4	5	6	7	8	9	10
答案	e	a	e	d	a	c	d	e	a	d
題號	11	12	13	14	15	16	17	18	19	20
答案	b	d	e	e	e	b	c	d	d	d
題號	21	22	23	24	25					
答案	a	d	b	d	a					