

2009 – CE

BIO

PAPER 1



中學會考

2009 年 模擬試卷

生物 試卷一

參考答案

1. 1/2 mark each

Chlorophyll 葉綠素 Chloroplast 葉綠體

oxygen 氧 hydrogen atom 氫原子

sugar 糖 starch 澱粉

2.(a)

(1) Fresh juices may contain a protein-digesting substance(1)

which digest gelatin cubes (1)

新鮮果汁含有可消化蛋白質(1)

可消化白明膠方塊(1)

(2) because meat contains protein (1) which is digested by the fresh fruit

juices

因為肉類含有蛋白質(1)可被新鮮果汁消化

(3) fresh pineapple juice (1)新鮮菠蘿汁

(b) fresh juice digest the gelatin but boiled juice cannot (1)

indicate that the protein-digesting substance is an enzyme which can

be denatured by boiling (1)

新鮮果汁可消化白明膠，而煮沸果汁則不能夠(1)

顯示出可消化蛋白質是酶，高溫而變性(1)

(c) divided into smaller size of cubes(1) 分成較細少方塊(1)

(d) fruit contain cellulose but juice are not (1)

生果含纖維素但果汁則沒有(1)

which can stimulate the peristalsis (1)它可刺激腸管蠕動(1)

and prevent constipation (1)及防止便秘(1)

3.

(a) excessive loss of water (1) and loss of nutrient (1)

嚴重失水(1)和流失養料(1)

(b) (i) less food intaken (1)

but more food consumed/respired (1)

rate of respiration is greater than rate of food intaken (1)

so used up the food storage (1)

進食較少食物(1)

但較大食物消耗/呼吸(1)

呼吸速率高於攝食速率(1)

所以將食物貯存消耗(1)

(ii) overactive (1) 過度活躍

(c) synthesis of cell component (1) 製造細胞成份

insulation (1)絕緣體

Effective communication 傳意能力- 1

4.

(i) A and C (1)

because of same ear lobed character (1)

因為有同一耳垂性狀(1)

(ii) The couples are ear lobed, so each of them must carry at least one allele for ear lobed (1)

B is a no ear-lobed, so B must have received at least one allele for no ear-lobed from either of her parents.(1)

Thus at least one of the parents is heterozygous (1)

In a heterozygous condition, only the dominant allele is expressed (1)

Thus the allele for ear lobed is dominant

該夫婦是有耳垂，他們各人必定擁有最少一個捲舌的等位基因

(1)

B 是沒有耳垂，他必須接受最少一個來自父或母的非捲舌等位基

(1)

他的親代最少一個是雜合的 (1)

在雜合的情況下，只有顯性等位基因能表現其特性 (1)

所以耳垂等位基因屬顯性

Effective Communication – 1 (傳意能力)

(iv)50% (1)

5.

(a) (1) heart rate of X = 75 per min (1)

X 的心跳速率 = 每分鐘 75 次

(2) heart rate of Y = 60 per min (1)

Y 的心跳速率 = 每分鐘 60 次

(b) the volume of blood pumped out of the heart in each beat

每次心跳所泵出的血量

(1) X : 80mL (1)

(2) Y : 100mL(1)

(c) Y

Because Y's heart pumping greater volume of blood out of the heart
in each beat(1)

Which mean that his heart is more strong / muscular (1)

That is due to the result of exercise (1)

因為 Y 的心臟在每次心跳時能泵出較多血液(1)

這顯示他的心臟較為強壯/ 具較多肌肉(1)

這是經常運動的結果(1)

6.

(i) Paper making requires the use of timber (1).

Thus deforestation is necessary. (1)

The direct exposure of soil lead and(1)no root for anchorage the soil(1)

cause soil erosion

紙張製造需大量木材(1)

Effective communication 傳意能力- 1

所以有伐木的需要(1)

使土壤直接暴曬 (1)及沒有樹根抓緊土壤(1)導致土壤侵蝕

(ii) Toxic gases (1) ; irritate respiratory tract (1)

有毒氣體(1) ; 刺激呼吸系統 (1)

(iii)Polystyrene bowl, Supermarket's bag, Soft drink can (1)

發泡膠盒、超市袋子、汽水罐

(iv)recycle the collected wastes (1)

less pollutant produced (1)

less exploit the non-renewable resources (1)

將所收回廢物循環再用(1)

製造較少污染物(1)

可減少採用不可再生的資源(1)

(v) food residue decompose by bacteria (1)

act as organic fertilizer (1)

細菌分解食物殘渣(1)

可作有機肥料(1)

7.

(a) photograph 圖 I (1)

(b) bright light acting on light receptor on retina (1)

nerve impulse is generated (1)

which is transmitted through sensory neurone to the brain(1)

motor neurone to the muscle A(1) and change the size of B

強光射在視網膜上的光感受器(1)

產生神經脈衝(1)

透過感覺神經元傳至腦(1)

再運動神經元至肌肉 A(1)及改變 B 的大小

(c) pupil constriction reduces the amount of light entering the eyeball/

to prevent over stimulation of the retina (1)

瞳孔收縮減少射入眼球的光量/

可防止視網膜過度刺激(1)

8.(a)

(i) higher growth rate in seedling (1)

give obvious result in a short time (1)

較高生長速率的幼苗(1)

可在短時間作出明顯結果(1)

(ii) seedling growth toward to higher light intensity source (1)

幼苗莖部的生長向著較高光源方向(1)

(iii) Due to the effect different amount of light intensity acting on seedling

(1)

there is a higher conc. of auxin accumulated side near lamp Y/left side

(1)

auxin has a growth stimulating effect.(1)

Therefore the left side grows faster than the right side and the

seedling curves to the right.(1)

Effective communication - 1 (傳意能力)

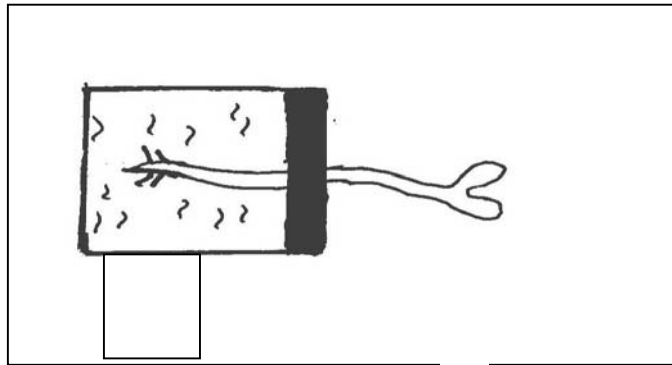
因不同光量照射在幼苗的影響，(1)

近燈 Y 的幼苗部分/左部積聚較高生長素(1)

生長素是有刺激生長效應(1)

所以左部相對右部生長較快(1)及至幼苗彎向右

(iv)(2 or 0)



Light 光

8.(b)

(i) birds with beaks of different lengths(1)

link length of beak to different position of prey(1)

e.g. bird C with longer beaks able to feed on ragworm(1)

鳥兒具不同喙的長度(1)

此性狀是與攝食不同位置的獵物相關(1)

如鳥 C 的長喙能使攝食沙蟲(1)

(ii) variation in beak length in curlews(1)

longer/more curved beaked curlews outcompete(1)

access more food(1)

reproduction and genes passed on (1)

鳥類的長度存有變異(1)

較長者為具競爭優勢(1)

取得較多食物(1)

繁殖及將該基因傳送(1)

(ii) body has lower water potential(1)

water diffuses along a water potential gradient(1)

身體具較低水潛能(1)

水分隨梯度滲入(1)

9.(a)

(i) under normal case, fertilization take place at oviduct (1);

inside the body (1)but now, the process is at petri dish ; outside the body .

在正常懷孕的情況下，受精作用於輸卵管的上端進行 (1)；

體內 (1)但於上述過程，受精作用則在培養皿內進行；體外

(ii) fight for about the right of the mother(1)

可能導致有關母權的爭奪

choosing the sex of foetus, affecting the sex ratio in the population(1)

可能有人會挑選嬰兒的性別，導致擾亂人口的性別比例

(iii)blockage of oviduct 輸卵管閉塞 (接受其他合理答案) (1)

(iv)provide food for embryo respiration (1)

to release energy for growth (1)

提供食物給胚胎呼吸(1)

釋出能量給予生長(1)

(v) date after day 14 of the cycle (1)

the uterine wall thickness is great (1)

highly vascularized nature provide nutrient for the embryo (1)

週期的十四日後(1)

厚子宮內壁(1)

充滿血液可供應胚胎營養(1)

Effective communication 傳意能力- 1

9.(b).

(i) In tube A

Under bright light condition, rate of photosynthesis is greater than rate of respiration (1)

Net carbon dioxide uptake (1)

and less carbon dioxide in the tube/pH increases

強光下，光合作用速率高於呼吸速率(1)

淨二氧化碳吸取(1)其量下降及 pH 上升

In tube B

respiration only in B produce carbon dioxide(1)

and more carbon dioxide in the tube / pH decreases(1)

只有呼吸作用產生二氧化碳(1)

其量上升及 pH 下降(1)

In tube C

rate of photosynthesis = rate of respiration(1)

no net change in carbon dioxide(1)

光合作用速率等於呼吸速率(1)

沒有淨二氧化碳變化(1)

(ii) shows that indicator alone does not change colour in light(1)

顯示指示劑不會任何色澤轉變(1)

(iii)so that all tube receive same amount of heat/light(1)

確保所有試管取得同一熱量/光(1)

10.(a).

(i) Pig's farm release organic wastes into the river (1)

Bacteria in water decompose it (1)

In which use up the oxygen in the river (1)

養豬場將有機物/ 糞肥排放入接近地點 B 的河流中 (1)

它們被水中的細菌分解 (1)

而分解過程需要消耗河水中的溶氧 (1)

(ii) ammonium fertilizer used in the farm was leached into the river (1)

the decay product of organic wastes is ammonia (1)

農田上含氮化合物的化學肥料被淋溶入河 (1)

河水中有機物質的分解亦會形成氨 (1)

(iii) planting on the barren land /sewage treatment for pig's waste before

discharge / relocate the pig's farm (1)

種植農作物/ 植被覆蓋裸地/ 將養豬場的糞肥處理後才排入河中/

將養豬場 遷移至其他地方 (1)

(iv) algae absorb the mercury from the factory (1)

large amount of algae eaten by fish and large amount of fish eaten by man (1)

mercury cannot excrete and metabolize (1)

so mercury accumulate along the food chain and to toxic level (1)

微細海藻吸收由工廠排出的汞 (1)

魚進食很多微細海藻，而人則進食很多魚 (1)

由於汞不能被生物排或分解 (1)

故汞沿食物鏈不斷累積，並達到人體有害的水平 (1)

Effective communication 傳意能力- 1

10.(b).

(i) rapid increase, steady rise and plateau clearly identified (1)

快速上升及後平穩(1)

(ii) find value of pulmonary ventilation from graph / 26-28 (1)

圖中找出肺換氣速率

divide by breathing rate /20 (1)

被換氣速率除

(iii) During exercise, high carbon dioxide in blood stimulate the medulla

(1)

more impulses pass to intercostals muscle/diaphragm (1)

provide greater rate of contraction (1)

運動期間，血液高二氧化碳量刺激延腦(1)

傳出更多脈衝至橫膈膜/肋間肌(1)

得以提高收縮速度(1)

(iv) air is from nose/trachea/bronchi/not been in alveoli/dead space (1)

gas exchange / diffusion only in alveoli/not in these structures (1)

氣體來自鼻子/氣管/支氣管/不是肺泡/無效空間(1)

沒有氣體交換(1)