

○ حاضر

○ غائب



سُلْطَنَةُ عُومَانِ
وَزَارَةُ التَّوْزِيَةِ وَالتَّعْلِيمِ

امتحان شهادة دبلوم التعليم العام للمدارس الخاصة (ثنائية اللغة)

للعام الدراسي ١٤٣٣/١٤٣٢ هـ - ٢٠١٢ / ٢٠١٣ م

الدور الثاني - الفصل الدراسي الأول

رقم الورقة

رقم المغلف

- زمن الإجابة: ثلاث ساعات.
- الإجابة في الورقة نفسها.

- تنبيه: المادة: الأحياء.
- الأسئلة في (٨) صفحات.

تعليمات وضوابط التقدم للامتحان:

- الحضور إلى اللجنة قبل عشر دقائق من بدء الامتحان للأهمية.
- إبراز البطاقة الشخصية لمراقب اللجنة.
- يمنع كتابة رقم الجلوس أو الاسم أو أي بيانات أخرى تدل على شخصية الممتحن في دفتر الامتحان، وإلا ألغي امتحانه.
- يحظر على الممتحنين أن يصطحبوا معهم بمركز الامتحان كتباً دراسية أو كراسات أو مذكرات أو هواتف محمولة أو أجهزة النداء الآلي أو أي شيء له علاقة بالامتحان كما لا يجوز إدخال آلات حادة أو أسلحة من أي نوع كانت أو حقائب يدوية أو آلات حاسبة ذات صفة تخزينية.
- يجب أن يتقيد المتقدمون بالزي الرسمي (الدشداشة البيضاء والمصر أو الكمة للطلاب والدارسين والزي المدرسي للطالبات واللباس العماني للدارسات) ويمنع النقاب داخل المركز ولجان الامتحان.
- لا يسمح للمتقدم المتأخر عن موعد بداية الامتحان بالدخول إلا إذا كان التأخير بعذر قاهر يقبله رئيس المركز وفي حدود عشر دقائق فقط.
- يتم الالتزام بالإجراءات الواردة في دليل الطالب لأداء امتحان شهادة دبلوم التعليم العام.
- يقوم المتقدم بالإجابة عن أسئلة الامتحان المقالية بقلم الحبر (الأزرق أو الأسود).
- يقوم المتقدم بالإجابة عن أسئلة الاختيار من متعدد بتظليل الشكل (○) وفق النموذج الآتي:
- س - عاصمة سلطنة عمان هي:
○ القاهرة ○ الدوحة
● مسقط ○ أبوظبي
- ملاحظة: يتم تظليل الشكل (●) باستخدام القلم الرصاص وعند الخطأ، امسح بعناية لإجراء التغيير.
- صحيح ● غير صحيح ○
○ × ○ ● ○

Question 1**(28 marks)****Circle the best correct answer for each of the following questions.**

1. One of the following animals has external gills:

- | | |
|---|------------------------------------|
| <input type="checkbox"/> nematode worm. | <input type="checkbox"/> sea slug. |
| <input type="checkbox"/> sea anemone. | <input type="checkbox"/> flatworm. |

2. The alveoli in human lungs do not collapse because of presence of anti-sticking chemical called :

- | | |
|--|---|
| <input type="checkbox"/> surfactant. | <input type="checkbox"/> pleural fluid. |
| <input type="checkbox"/> carbonic anhydrase. | <input type="checkbox"/> carbonic acid. |

3. The substance that formed after water stress and lead to closing the stomata is:

- | | |
|--|---|
| <input type="checkbox"/> CO ₂ | <input type="checkbox"/> H ₂ CO ₃ |
| <input type="checkbox"/> ABA | <input type="checkbox"/> O ₂ |

4. One of the following gases has the largest percentage in alveolus:

- | | |
|---|--|
| <input type="checkbox"/> O ₂ | <input type="checkbox"/> CO ₂ |
| <input type="checkbox"/> N ₂ | <input type="checkbox"/> H ₂ |

5. The structure that found in gas exchange system in grasshopper is:

- | | |
|-------------------------------------|-----------------------------------|
| <input type="checkbox"/> spiracles. | <input type="checkbox"/> alveoli. |
| <input type="checkbox"/> diaphragm. | <input type="checkbox"/> pharynx. |

6. One of the following animals has closed circularity system:

- | | |
|------------------------------------|------------------------------------|
| <input type="checkbox"/> mammals. | <input type="checkbox"/> insect. |
| <input type="checkbox"/> flatworm. | <input type="checkbox"/> nematode. |

7. The part in the heart that receive deoxygenated blood from the body is :

- | | |
|--|---|
| <input type="checkbox"/> left atrium. | <input type="checkbox"/> left ventricle. |
| <input type="checkbox"/> right atrium. | <input type="checkbox"/> right ventricle. |

8. The blood vessel that has high pressure is :

- | | |
|--|--|
| <input type="checkbox"/> aorta. | <input type="checkbox"/> pulmonary artery. |
| <input type="checkbox"/> pulmonary vein. | <input type="checkbox"/> vena cava. |

9. Phloem tissue in plant includes all of the followings EXCEPT:

- | | |
|--|--|
| <input type="checkbox"/> paranchyma cells. | <input type="checkbox"/> sieve tube cells. |
| <input type="checkbox"/> tracheids. | <input type="checkbox"/> companion cells. |

10. Stomata open and close due to:

- | | |
|--|---|
| <input type="checkbox"/> presence of valves. | <input type="checkbox"/> hormonal control. |
| <input type="checkbox"/> turgor pressure of guard cells. | <input type="checkbox"/> presence of cuticle. |

11. One of the followings does not affect transpiration rate:

- | | |
|---------------------------------------|---|
| <input type="checkbox"/> temperature. | <input type="checkbox"/> light. |
| <input type="checkbox"/> wind speed. | <input type="checkbox"/> chlorophyll content of leaves. |

12. The cell in plants that acts as a source cell of sucrose is:

- | | |
|--------------------------------------|---------------------------------------|
| <input type="checkbox"/> leaf cell. | <input type="checkbox"/> Root cell. |
| <input type="checkbox"/> Fruit cell. | <input type="checkbox"/> Flower cell. |

13. One of the following is not reabsorbed from nephron:

- | | |
|---------------------------------|------------------------------------|
| <input type="checkbox"/> water. | <input type="checkbox"/> urea. |
| <input type="checkbox"/> sugar. | <input type="checkbox"/> minerals. |

14. Urea in kidneys is formed due to breakdown of:

- | | |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/> ammonium | <input type="checkbox"/> ammonia |
| <input type="checkbox"/> amino acid | <input type="checkbox"/> uric acid |

Question 2**(14 marks)****1. Define the followings: (1mark)****a)** pleural membrane:

b) gill arch:

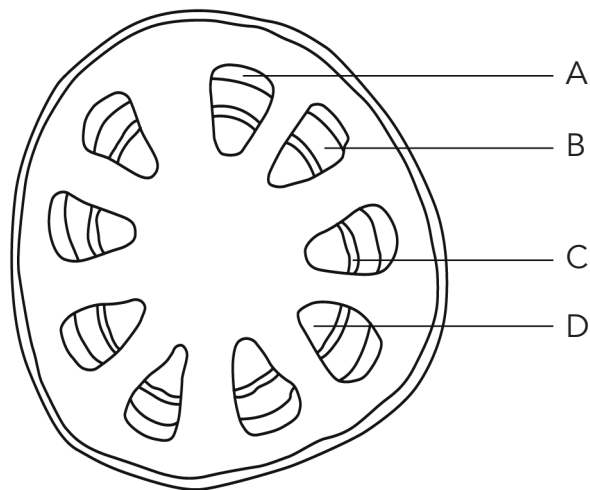
2. Explain the process of expiration in human lungs in four steps. (4 marks)

3. Explain the atrial systole in human heart in four steps. (4 marks)

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4. The figure below shows a cross section of a dicotyledonous plant showing some of its tissues. (5 marks)



- a) Name the organ of the plant shown in the diagram above.

- b) Name the tissues labeled:

A: _____

B: _____

C: _____

D: _____

- c) What are the functions of parts labeled:

C: _____

D: _____

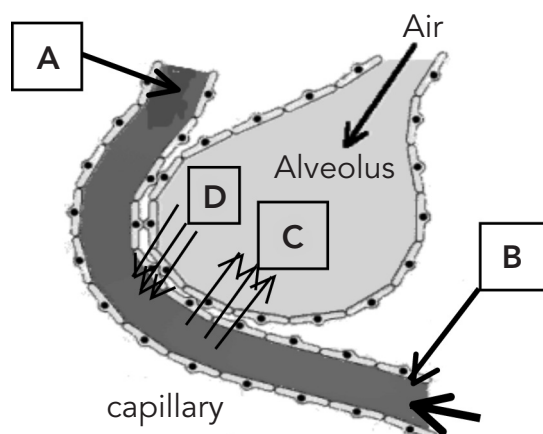
Question 3**(14 marks)**

1. Explain the effects of the following factors in gas exchange in plants: (4 marks)

a) Accumulation of Abscissic acid in plant leaves:

b) Accumulation of O₂ in plant leaves.

2. The following figure shows the gas exchange in human alveolus. (4 marks)



a) What is the type of blood in parts.

A: _____

B: _____

b) Name the gases labeled.

C: _____

D: _____

c) Why the percentage of oxygen in alveolus less than that in inspired air ?

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- d) Explain why is expired air saturated with water?

3. Using the table below, Compare between artery and vein. (3 marks)

	Artery	Vein
Presence of valves		
Blood pressure		
Lumen size		

4. Compare in the table below transport in xylem and transport in phloem. (3 marks)

	Transport in xylem	Transport in phloem
Substances transported		
Source of substances in plant		
Sink		

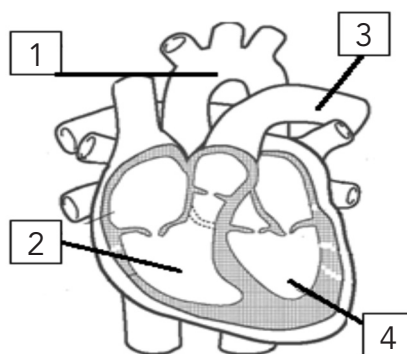
Question 4 (14 marks)

1. Define the single blood circulation. (1 mark)

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2. The following figure shows structure of human heart.

(4 marks)



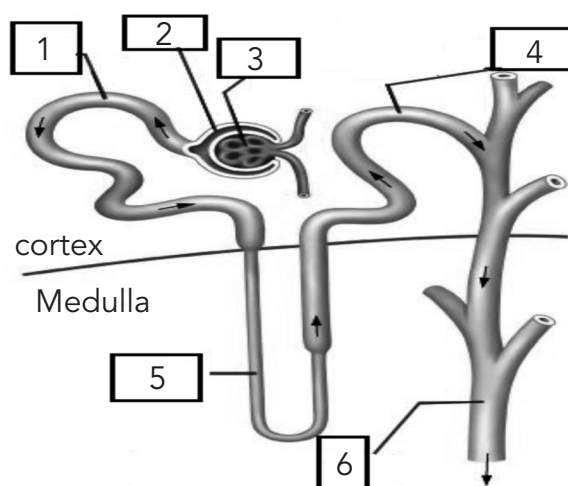
a) Explain why part 4 has thicker wall than part 2?

b) What is the function of part 3?

c) Name part 1.

3. The following diagram shows the structure of the nephron.

(6 marks)



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a) Name the parts labeled 1-6

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

b) Indicate the areas of the ADH action in the nephron?

c) Explain the effect of the antidiuretic hormone (ADH) in those areas?

4. Explain how and why the rate of transpiration is effected by the following conditions: (3 marks)

a) An increase in light intensity.

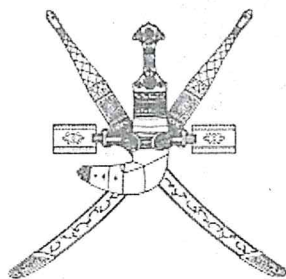
b) A decrease in temperature.

[End of Examination]

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مُسَوِّدَة

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SULTANATE OF OMAN
MINISTRY OF EDUCATION
DIRECTORATE GENERAL OF EDUCATIONAL EVALUATION



GENERAL EDUCATION DIPLOMA EXAMINATION
FOR BILINGUAL PRIVATE SCHOOLS

BIOLOGY

Second SESSION 2012 / 2013
First Semester

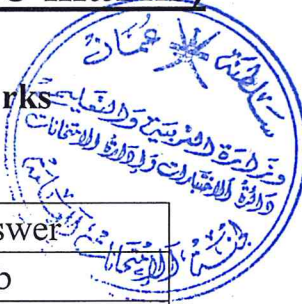
MARKING GUIDE

[This guide consists of 4 pages]

ANSWERS

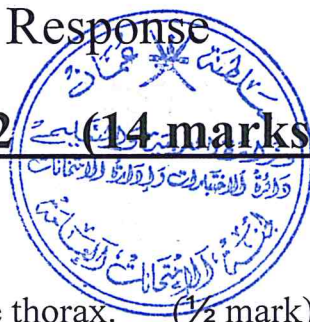
QUESTION 1 (28 marks)

Each answer 2 marks



Question number	Answer
1	b
2	a
3	c
4	c
5	a
6	a
7	c
8	a
9	c
10	c
11	d
12	a
13	b
14	c

Written Response

QUESTION 2 (14 marks)

1. (1 mark)

- a. membrane that cover the lung and lining the thorax. (½ mark)
- b. the bone that support each gill in bony fishes. (½ mark)

2. (4 marks)

- The internal intercostal muscles contract and the external intercostal muscles relax.
- The diaphragm relaxes and bulges upwards.
- The volume of inside the thorax decreases causing the pressure of inside the thorax to increase.
- Air is forced out of the lungs as the elastic tissue of the alveoli recoils.

3. (4 Marks)

- The heart is full of blood and the ventricles are relaxed.
- Both the atria contract and the blood passes down the ventricles.
- The atrio-ventricular valves open due to the pressure of blood against them.
- 70% of the blood flows passively down to the ventricles.

4. (5 marks)

a. Cross/ transverse section of stem. (1 mark)

b. (2 marks each ½)

A: Sclerenchyma

B: phloem

C: cambium

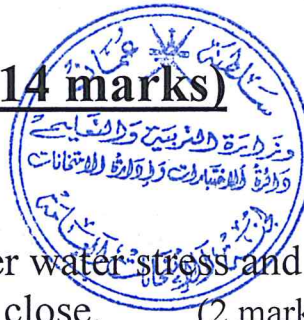
D: xylem

c. (2 marks)

C: to produce new phloem cells outside and new xylem cells inside.

D: : transport water and mineral salts up to the stem from the roots to the leaves.

QUESTION 3 (14 marks)



1. (4 marks)

- a. Abscissic acid formed in the leaves after water stress and it cause the guard cells to be flaccid and stomata to close. (2 marks)
- b. Accumulation of O_2 inside the leaves will cause stomata to open to let O_2 to diffuses outside the leaves . (2 marks)

2. (4 marks)

- a. A: oxygenated blood B: deoxygenated blood (1 mark)
- b. C: CO_2 D: O_2 (1 mark)
- c. because the inspired air mixes with air already in the lungs which has a lower percentage of oxygen. (1 mark)
- d. because the water is produced during carbon dioxide transport from red blood cells to the lungs which will be going out from the lungs with expired air. (1 mark)

3. (3 marks, each space $\frac{1}{2}$ mark)

	Artery	Vein
Presence of valves	No valves	Valves present
Blood pressure	High	Low
Lumen size	Narrow or small	Large

4. (3 marks)

	Transport in xylem	Transport in phloem
Substances transported	Water and minerals	Sugar and amino acids
Source of substances in plant	Root	Leaves
sink	Leaves	Roots, fruits and flowers

QUESTION 4 (12 marks)



1. (1 mark)

Single blood circulation is the passes of the blood through the heart once in one circuit of the body.

2. (4 marks)

- a. because the right ventricle has to pump the blood for short distance (from heart to lungs) while left ventricle has to pump blood for long distance (from heart to all rounds in the body). (2 marks)
- b. carries the blood from the heart to the lungs. (1 mark)
- c. aorta. (1 mark)

3. (6 marks)

- a. (each label $\frac{1}{2}$ mark)
 - 1- Proximal convoluted tubule.
 - 2- Bowman's capsule.
 - 3- Glomerulus.
 - 4- Distal convoluted tubule.
 - 5- Loop of Henle.
 - 6- Collecting duct.
- b. Distal convoluted tubule and the collecting duct. ($1\frac{1}{2}$ mark)
- c. It makes the distal convoluted and collecting duct more permeable to water Which make the water to reabsorbed so smaller volume of concentrated urine produced . ($1\frac{1}{2}$ mark)

4. (3 marks)

- a. Increase light intensity will increase photosynthesis which will increase formation of sugar in guard cells forcing water to move in them and they will become turgid and the stoma will opened. ($1\frac{1}{2}$ mark)
- b. decrease the rate of transpiration because it decrease the kinetic energy of water molecules so their rate of diffusion through the stomata pores increase OR air will hold less water molecules at lower temperature. ($1\frac{1}{2}$ mark)