

科目：解剖生理學

系組：呼吸治療學系

年級：二

## 注意事項：

1. 答案請依下列範例，以橫式書寫方式寫在彌封答案卷內。
2. 請標明題號並排列整齊，作答格式（範例）如下：

一、問答題：
1. XXXX
2. XXXXX
二、MULTIPLE CHOICE.
1) E
2) F

3. 未按作答格式（範例）作答者，扣該科總分10分。

## 一、問答題：50分

1. 請寫出哪些變化會刺激 peripheral 和 central chemoreceptors 以調控呼吸？(5分)
2. 畫出心動週期中左心房、左心室和主動脈的壓力變化圖。並標示出心瓣膜何時打開與關閉、何時發出心音以及 ventricular ejection 的模式。(10分)
3. 說明並比較細胞溶質中  $Ca^{2+}$  濃度升高使骨骼肌、平滑肌和心肌細胞收縮的機制。(10分)
4. Renin 是由哪一個細胞分泌？請寫出控制 Renin 釋放的因素有哪些？(5分)
5. 腸道中 micelles 的組成為何？其在脂肪吸收中的作用為何？(10分)
6. 請詳細寫出在有光和無光情況下，photoreceptor cells 去極化或過極化的機制。(10分)

## 二、MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question. (50分)

1) Which statement concerning the anatomical position is FALSE?

- A) The knees, elbow, and neck are straight (not bent).
- B) The toes point anteriorly, but the fingers point inferiorly.
- C) The person is lying down, as straight as possible.
- D) The palms face anteriorly.

2) Which organ system keeps blood constantly supplied with oxygen, removes carbon dioxide, and contains many air tubes? A) respiratory B) urinary C) integumentary D) endocrine

※ 注意：1. 考生須在「彌封答案卷」上作答。

2. 本試題紙空白部份可當稿紙使用，試題須隨答案卷繳回。

3. 考生於作答時可否使用計算機、法典、字典或其他資料或工具，以簡章之規定為準。

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- 3) Most organ systems are fully formed and ready to function in the fetus by the sixth month. Which of the following systems is the exception to this generalization because it takes longer to finish development?  
A) the circulatory system B) the respiratory system  
C) the integumentary system D) the urinary system
- 4) The cavity in the mesoderm that ultimately develops into the peritoneal, pericardial, and pleural cavities is called:  
A) a blastocoel. B) a deratome. C) a coelom. D) an antrum.
- 5) A pseudostratified epithelium is always  
A) ciliated. B) cuboidal. C) simple. D) stratified.
- 6) Which of the following is *not* part of the axial skeleton?  
A) the skull B) the sternum C) the sacrum D) the pelvis
- 7) Which of the following facial bones is unpaired?  
A) zygomatic B) vomer C) palatine D) lacrimal
- 8) The bone that has the pterygoid processes, greater wings, and a hypophyseal fossa is the A) palatine. B) ethmoid. C) temporal. D) sphenoid.
- 9) Which tarsal bone lies anteriorly to the talus?  
A) cuboid B) calcaneus C) navicular D) lateral cuneiform
- 10) All of the following are in the proximal row of four carpal bones *except* the  
A) triquetral. B) trapezoid. C) scaphoid. D) pisiform.
- 11) A muscle that inserts on the lateral surface of the ramus of the mandible but *not* on the coronoid process is the A) digastric. B) lateral pterygoid. C) masseter. D) temporalis.
- 12) The lateral border of the cubital fossa is formed by the  
A) brachioradialis. B) tendon of the biceps brachii. C) pronator teres. D) median nerve.
- 13) All of the following are structures of the limbic system *except* the  
A) cingulate gyrus. B) amygdaloid nucleus. C) hippocampus. D) caudate nucleus.

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- 14) One of the distinctions between the cerebrum and cerebellum is that  
A) the cerebrum is folded into gyri and lobes, whereas the cerebellum is only folded into folia but lacks lobes.  
B) the cerebellum is involved only in refining motor responses, whereas the cerebrum is involved in both motor function and cognition.  
C) fibers of the cerebellum enter and leave ipsilaterally, whereas those of the cerebrum enter and leave contralaterally.  
D) gray matter is found superficially and deep in the cerebrum but is present only superficially in the cerebellum.
- 15) Starting at the spinal cord and proceeding laterally, the subdivisions of the brachial plexus are  
A) divisions, rami, trunks, cords. B) trunks, divisions, cords, rami.  
C) rami, trunks, divisions, cords. D) rami, divisions, cords, trunks.
- 16) To avoid double vision, which of the following groups of cranial nerves must be functioning correctly? A) VII, VIII, and XII B) V, XI, and XII C) I, IX, and X D) III, IV, and VI
- 17) The left lung  
A) is supplied entirely by a secondary bronchus.  
B) has a cardiac notch.  
C) receives oxygenated blood from the heart via the left pulmonary artery.  
D) has three lobes.
- 18) Which portion of the nasal cavity is lined with olfactory epithelium?  
A) vestibule B) hard and soft palate C) nasal conchae D) roof (ceiling)
- 19) The detergent-like molecule that keeps the alveoli from collapsing between breaths is called  
A) surfactant. B) hemoglobin. C) oxygen. D) bile.
- 20) Lung cancer occurs slightly more frequently in the right lung than in the left lung (about 53% versus 47% of the time). The most logical explanation for this is that  
A) the tissue of the right lung is more susceptible to carcinogens.  
B) most people are right-handed, so everything affects the right side of the body more intensely.  
C) the right primary bronchus is wider than the left one (and the right lung is larger than the left lung), so the right lung receives slightly more carcinogenic cigarette smoke with each puff.  
D) the right nostril is closed more often than the left one, so it blocks the exhalation of cigarette smoke and causes smoke to back up into the right lung.

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- 21) The correct definition of bronchopulmonary segments is  
A) parts of the lung that are easy to remove during surgery.  
B) parts of the lung that are supplied by a single tertiary bronchus (and its branches).  
C) arbitrary subdivisions of a lung, about as large as a fist (0.3 liter).  
D) parts of the lungs that are separated by the oblique and horizontal fissures.
- 22) When the diaphragm contracts, the size of the thoracic cavity \_\_\_\_\_, the pressure inside the thoracic cavity \_\_\_\_\_, and air flows \_\_\_\_\_ the lungs.  
A) decreases, drops, out of    B) decreases, rises, into  
C) increases, drops, out of    D) increases, drops, into
- 23) In most cases, the accessory pancreatic duct drains into the  
A) common hepatic duct.    B) common bile duct. C) duodenum.    D) jejunum.
- 24) The most superficial layer of the kidney is the  
A) cortex. B) renal pyramids.    C) medulla. D) renal papilla.
- 25) The vaginal fornix  
A) surrounds the external vaginal orifice.    B) is in the middle layer of the vaginal wall.  
C) surrounds the tip of the cervix.    D) is in the superior part of the vestibule.

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