Exam No. | |

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President of Ireland

MCQ Examination for the

Membership of the College of Anaesthetists of Ireland

July 2018

Subject: Sample Paper 2- Physiology

TIME ALLOWED 60 MINUTES

- This booklet must not be taken from the Examination Hall
- There are 30 questions with 5 options on the paper
- Each question may be TRUE or FALSE
- Therefore you should have 150 responses by the end of the exam
- Allow enough time to fill out the Optical Mark Answer Sheet
- Please use the pencil provided only
- Please keep the answer sheet dry and do not fold the answer sheet
- There is no negative marking in this examination
- No mark is awarded for an answer left blank
- Candidates should answer all the questions

College of Anaesthetists

Membership MCQ - Physiology Multiple Choice Paper on 25 December 2018

There are 30 questions on this paper

Q 1 **Concerning smooth muscle:**

A Adenosine causes vasodilatation of coronary vessels during hypoxia

B Histamine dilates arterioles in the skin circulation

C Platelet activating factor (PAF) causes bronchoconstriction in asthma

D Nitric oxide (NO) synthesis increases in endotoxic shock

E Blood vessels in the skin constrict in response to cold

Q 2 **Regarding the liver**

A Blood flow is normally 70% through the portal vein and 30% through the hepatic artery

B Oxygen supply is 70% through the portal vein, 30% through the hepatic artery

C Tissue oxygen consumption is about 1ml/gram/minute

D Blood flow represents about 40% of cardiac output

E Blood flow is reduced during hyperventilation

Q 3 **Motor end-plate potentials:**

A Cannot summate

B Are caused by a decrease in permeability of the motor end-plate to calcium

C Occur in smooth muscle

D Are " all or none"

E Occur when acetylcholine receptors on the motor end-plate are activated

Q 4 **Low serum calcium may be associated with:**

A Increased calcitonin release

B An increased serum phosphate concentration

C Hyperexcitability of peripheral nerves

D Vitamin D deficiency

E Reduced parathormone release

Q 5 **The functions of the liver include:**

A Gluconeogenesis.

B Synthesis of bilirubin.

C Synthesis of fibrinogen

D Conversion of ammonia to urea.

E Synthesis of plasma γ-globulins.

Q 6 **Concerning the glomerular filtration rate (GFR):**

A It decreases if there is obstruction to flow of urine in the ureter

B It decreases during severe hypotension

C It is usually equal to the renal plasma flow

D It can be measured using inulin

E A low value always indicates renal disease

Q 7 **Renal blood flow:**

A Can be measured using para-aminohippurate

B Is subject to autoregulation which can be abolished by smooth muscle paralysis

C Is not altered by autonomic nervous system activity

D Is distributed more to the renal cortex than to the medulla

E Is increased during exercise

Q 8 **Regarding the normal transport of carbon dioxide:**

A it is carried in the form of carboxyhaemoglobin

B it is carried in the form of carbamino compounds

C it is carried bound to 2,3-DPG

D it is carried mostly in the form of bicarbonate ions

E the arterial PCO2 is 13.3 kPa (100 mmHg)

Q 9 **Respiratory dead Space:**

A In the healthy individual is close to 0 mls

B Anatomic Dead Space can be easily measured in the operating room.

C Physiologic Dead Space is estimated using Bohr's equation

D Fowler's method requires measurement of exhaled oxygen

E Is responsible for the PaCO2-ETCO2 gap

Q 10 **In the control of ventilation:**

A The Dorsal Respiratory Group of neurons is in the medulla oblongata

B Central chemoreceptors are responsible for ventilatory response to hypoxemia

C The ventilatory response to hypoxemia is linear

D Opiates causes a rightward shift in the ventilator response curve to carbon dioxide

E J receptors respond to inhaled irritants