

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 3- Clinical Measurement

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 - Clinical Measurement Multiple Choice Paper on 25 December 2018

There are 30 questions on this paper

Q 1 Regarding Cylinder gas supplies

- A** The emergency oxygen cylinder should always be open, during use of the machine with the pipeline supply
- B** The emergency oxygen cylinder at the rear of an anesthetic machine is usually a size 'E' cylinder
- C** The emergency cylinder is opened by turning the valve in an anti-clockwise direction
- D** Pins on the body of the cylinder valve protect against placing the wrong cylinder on the rear of the anaesthetic machine
- E** Coloured plastic rings around the valve indicate that the cylinder has been fully filled

Q 2 The modern endotracheal tube

- A** Has a left-sided bevel
- B** The cuff can be inflated to a maximum pressure of 50 cmH₂O
- C** Has a high pressure, low volume cuff
- D** Uses the French Gauge sizing system
- E** The Murphy Eye reduces the likelihood of tube occlusion

Q 3 When data has a Normal Distribution

- A** The mean is equal to the mode
- B** More than 99% of data points lie within two standard deviations of the mean
- C** Parametric tests can be used in hypothesis testing
- D** The standard error is the same as the standard deviation
- E** American Society of Anesthesiologists (ASA) score would be expected to have a Normal distribution

Q 4 Pulse oximetry

- A** Makes use of the Beer-Lambert law
- B** Oxyhaemoglobin absorbs most light at a wave-length of 660nm
- C** A sensor identifies the wavelength of the transmitted light
- D** Is accurate down to an SPO₂ of 60%
- E** The reading may be falsely low in tricuspid regurgitation

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- Q 5 **In automated non-invasive measurement of blood pressure**
- A The cuff should cover $>2/3^{\text{rd}}$ of the upper arm
 - B Mean arterial pressure is identified as the point of maximal oscillations
 - C At very low blood pressure the device tends to over-read the pressure
 - D Measurement of mean pressure is more accurate than of diastolic pressure
 - E A low-pass filter is required to analyse the pressure signal
- Q 6 **Regarding vaporisers**
- A The desflurane vaporiser is heated to a temperature of 23.5C
 - B Temperature within the vaporisation chamber tends to fall during operation
 - C Most modern vaporisers are of the 'draw-over' type
 - D The Aladin cassette uses a bimetallic strip for temperature compensation
 - E The Aladin cassette works as a 'measured-flow' vaporiser
- Q 7 **The electrocardiogram**
- A High frequency filters are used to reduce motion artefact
 - B The standard gain setting is 10 mm = 1 mV
 - C The limb leads are bipolar leads
 - D The augmented limb leads are unipolar leads
 - E Monitoring with Lead II will identify approximately 30% of cases of intraoperative ischemia
- Q 8 **Storage of gases**
- A For hospital use, oxygen is stored as a liquid at -30C
 - B The oxygen must be heated before entry to the pipeline system
 - C Oxygen in hospital pipelines is at a pressure of 400kPa
 - D Entonox is stored as a gas-liquid mixture
 - E The amount of nitrous oxide in a cylinder can be estimated using a pressure gauge

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Q 9 The Mapleson C breathing system

- A** The reservoir bag lies between the valve and the patient
- B** Is useful for patient transport
- C** PaCO₂ will rise if fresh gas flow is insufficient
- D** Fresh gas flow should be at least equal to the minute ventilation
- E** Compared to most other breathing systems, an advantage is the efficient use of fresh gas

Q 10 Mechanical ventilation

- A** In Volume control mode, a constant flow of gas is applied
- B** In Pressure Control mode, tidal volume is partly determined by the lung compliance
- C** The measured Peak Pressure, is a good indicator of lung stretch
- D** A tidal volume of 8 - 10 ml/ kg is appropriate for intraoperative use
- E** Positive End Expiratory Pressure (PEEP) can be a cause of hypotension