



Tanta University
Faculty of Medicine
Internal Medicine Department
Master of Anaesthesia (First Part)
April 2016


All questions must be answered
Time allowed: 3 hours
Total marks: 90

Give an account on the following:

- 1- Types and management of diabetic coma. (25)
- 2- Causes, clinical picture, investigations and treatment of chronic renal failure. (25)
- 3- Etiology, clinical features, diagnosis and treatment of iron deficiency anemia. (25)
- 4- Complications and management of peptic ulcer. (15)

يبدأ الإمتحان الشفوى والإكلينيكي فى الساعة الثامنة صباحا يوم الأحد
الموافق ٢٠١٦/٤/١٠ بمستشفى الأمراض الباطنة.

GOOD LUCK

Tanta University	Exam: Master (2 nd Part) (Paper 1)	
Faculty of Medicine	No. of Questions: 3	
Anesthesia Dep.	Times allowed: 3 hours	
Date: 9 / 4 / 2016	Total marks: 50	

1. A 32-year-old primigravida at 36 weeks gestational age, known to have multiple sclerosis (MS). She is scheduled for elective cesarean section.

- A. What preoperative information is important for this patient? (3 marks)
- B. How would you prepare her? (2 marks)
- C. Describe and justify your recommended anesthesia technique for her. (7 marks)
- D. What are the major postoperative concerns in her setting? (3 marks)

2. A 5-year-old child with history of bronchial asthma is scheduled for adeno-tonsillectomy. His mother is worried that he may have a common cold.


- A. How would you assess him? (3 marks)
- B. How would you counsel him and his mother? (2 marks)
- C. What premedication would you recommend for him? (1 mark)
- D. Describe and justify your anesthesia technique for him? (3 marks)
- E. What are the causes, differential diagnosis and treatment of bronchospasm under anesthesia? (6 marks)

3. A 46-year-old lady presents to surgical intensive care unit (SICU) with fever, dyspnea, and cloudy sensorium 5 days post colectomy surgery. Clinical examination shows; body weight is 72 kg, height is 1.68 m, pulse is 122 bpm, blood pressure is 80/30 mmHg, temperature is 38.6°C, respiratory rate is 28 / min, SpO₂ is 72%, and urine output is < 30 ml / hour for 3 consecutive hours. Blood chemistry reveals; WBC is 16000 / mm³, Hb is 9 g / dl, platelets

is 90000 / mm³ , Na⁺ is 136 mmol/L , K⁺ is 7.5 mmol/L , Cl⁻ is 92 mmol /L , lactate is 8 mmol / L , glucose is 10 mmol / L , and creatinine is 2.5 mg / dl.

- A. What is the first therapeutic step in the management of this patient? (2 marks)
- B. What is the differential diagnosis of this clinical condition? (2 marks)
- C. Classify ABGs and acid-base status of her? (2 marks)
- D. What further investigations would you recommend to verify diagnosis? (4 marks)
- E. How would you resuscitate her? (10 marks)

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Tanta University	Exam: Master (First part)	
Faculty of Medicine	Physics & Clinical Measurements	
Anesthesia & SIC Dep.	No. of Questions: 4	
Date: 9 / 4 / 2016	Times allowed: 3 hours	
	Total marks: 100	

1. Capnography is a standard basic monitoring in sedation, anesthesia, emergency room and ICU.

- A. Outline the principles of measurement of carbon dioxide in anesthetic breathing system? (4 marks)
- B. Draw, label, and discuss the normal capnogram. (5 marks)
- C. Draw, label, and discuss abnormal capnogram during anesthesia. (10 marks)
- D. Enumerate the other standard basic anesthesia monitoring? (2 marks)
- E. What is the clinical significance of progressively rising PaCO₂ values during isoflurane general anesthesia? (4 marks)

2. Recent anesthesia machine provides us the facility of using a low flow anesthesia.

- A. What is meant by a low flow anesthesia? (5 marks)
- B. Describe low flow anesthesia by the circle system? (5 marks)
- C. Discuss the advantages and disadvantages of the circle system? (7 marks)
- D. What safeguards would you require during low flow by the circle system? (5 marks)
- E. Enumerate and explain contraindications of low flow anesthesia? (3 marks)

3. Perioperative hypothermia is a preventable morbidity.

- A. what are the methods of measuring temperature? (5 marks)

B. What techniques are used to measure temperature in anesthesia and how do they work? (5 marks)

C. Why does core temperature drop under anesthesia? (5 marks)

D. How may this be prevented? (5 marks)

E. How can you prevent perioperative hypothermia? (5 marks)

4. Ultrasound plays an important role in modern anesthesia and critical care practice.

A. Discuss the physics of ultrasound, how is it generated, what is the frequency used? (6 marks)


B. How does the system know the depth of the reflection? (5 marks)

C. What is piezoelectric effect? (3 marks)

D. What is the Doppler-effect? How is Doppler principle used in clinical ultrasound? (5 marks)

E. Describe some uses of ultrasound in anesthesia and ICU settings? (6 marks)

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Tanta University	Exam: Master / Diploma (First Part)	
Faculty of Medicine	Physics & Clinical Measurements	
Anesthesia & SICU Dep.	No. of Questions: 4	
Date: 2 / 4 / 2016	Times allowed: 3 hours	
	Total marks: 100	

1. Body temperature should be monitored in patients undergoing surgery lasting > 30 minutes.

- A. Describe the methods and its physical principles for measuring body temperature? (12 marks)
- B. Enumerate the different sites for body temperature monitoring, and detail its uses? (6 marks)
- C. Mention the factors contributing to heat loss during anesthesia and surgery? (3 marks)
- D. How can you prevent perioperative hypothermia? (4 marks)

2. Tissue perfusion is dependent on pressure, resistance, and flow.

- A. Define the flow and what is its unit? (2 marks)
- B. What are the differences between laminar and turbulent flow? Mention examples in clinical practice? (6 marks)
- C. Draw the graphs which indicate the relation between pressure and flow in laminar and turbulent flow? (4 marks)
- D. Explain the Hagen-Poiseuille equation? (3 marks)
- E. What is Reynolds number? How it is calculated and what is its significance? (4 marks)
- F. Explain the difference between the following two values of blood pressure; 80/60 mmHg and 80/30 mmHg (4 marks)

G. What is the significance of pulmonary vascular resistance value of 180 dyn.s/cm⁵ (2 marks)

3. Capnography is not only used in anesthesia but also used in moderate to deep sedation, post-anesthesia care unit, emergency room, and in ICU settings.

A. Outline the principles of measurement of carbon dioxide in anesthesia breathing system? (4 marks)

B. Draw, label, and discuss the normal and abnormal capnogram during anesthesia? (12 marks)

C. Outline methods of elimination of CO₂ from the anesthesia breathing circuits? (6 marks)

D. What is the clinical significance of progressively rising PaCO₂ values during isoflurane anesthesia? (3 marks)

4. Safety in anesthesia practice should consider electrical safety in the operation room.

A. Define the following terms: resistance, inductance, and capacitance? (3 marks)

B. What is the difference between macro-shock and micro-shock? (2 marks)

C. What are the effects of an electric current transmitted through the body? (2 marks)

D. What is the difference between unipolar and bipolar diathermy? (2 marks)

E. What are the safety precautions to prevent electrocution from a diathermy? (4 marks)

F. What are the safety precautions to prevent fire in the operation room? (12 marks)

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Tanta University
Faculty of Medicine
Department of Physiology.
Examination for (MSC Anesthesia)
Course Title: Physiology
Total Assessment Marks:45

Course Code:
ANES 8001
Time Allowed:
Physio. +
Anat. Three
Hours

Date:4/4/2016

Term : Final

All the questions are to be answered:-

Q1- State: Pain sensation & pain analgesia system

(15 marks)

Q2- List: Five effects of incompatible blood transfusion.

(10 marks)

Case study: A medical student waiting to do her first patient interview at the Clinical Skills Center becomes very anxious and increases her rate of alveolar ventilation. If her rate of CO₂ production remains constant, which of the following will decrease?

- pH.
- PaO₂.
- PaCO₂.
- V_E/Q_E.
- Alveolar-arterial PO₂ difference.

Explain your answer

(5 marks)

Answer the following MCQs by the most probable one choice: In answer sheet (15 marks)

Q.1. Anaemia due to exposure of bone marrow to gamma radiation is called:

- Pernicious anaemia.
- Microcytic anaemia.
- Blood loss anaemia.
- Aplastic anaemia.

Q.2. In chronic stage of cardiac failure retention of fluid is caused by the following mechanism EXCEPT:

- Release of A.D.H.
- Release of aldosterone hormone.
- Sodium and water retention.
- Decrease of contractility of cardiac muscle.

Q.3. In a pregnant female oedema of both lower limbs is due to EXCEPT:

- Salt and water retention.
- Increased venous pressure in the lower limbs.
- Insufficient protein in the diet.
- Any of the above.

Q.4. Hydrochloric acid secretion by parietal cells:

- Requires dissociation of water with subsequent exchange of H⁺ with Na⁺.
- H⁺ is actively secreted into the canaliculus in exchange for K⁺.
- Cl⁻ enters the parietal cell in exchange for Na⁺ ions.
- No energy is needed for this process.

Q.5. Concerning bile and bile salts, all are true EXCEPT:

- Bile salts are emulsifying agents.
- Bile is concentrated in the gall bladder.
- Bile salts promote lipid absorption by forming water soluble micells.
- Its secretion from the liver is intermittent.

Q.6. In anaemic hypoxia:

- PO₂ in the blood is decreased.
- % saturation of haemoglobin is decreased.

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- c. Amount of oxygen dissolved in plasma is decreased.
- d. O₂ content of the blood is decreased.

Q.7. In primary hyperthyroidism:

- a. The thyroid gland may or may not be enlarged.
- b. There is a low pulse pressure.
- c. There is hypotonia.
- d. There is elevated serum TSH.

Q.8. The primary esophageal peristalsis differs from the secondary peristalsis in what the former:

- a. Occurs after the latter.
- b. Is independent of neural control.
- c. Is initiated by swallowing.
- d. Is confined to the upper part of the esophagus.

Q.9. In Addison's disease:

- a. There is excessive secretion of GH.
- b. A pituitary basophil adenoma may be present.
- c. The patient is mentally subnormal.
- d. There is excessive loss of Na⁺.

Q.10. In Cushing syndrome all the following feature are present EXCEPT:

- a. Excess facial hair.
- b. Osteoporosis.
- c. Hypovolaemia.
- d. Hyperglycaemia.

Q.11. Decreased tissue oxygen tension is a potent vasodilator in all of the following vascular beds, EXCEPT:

- a. Skeletal muscle.
- b. Brain.
- c. Lung.

- d. Kidney.

Q.12. The hydrostatic pressure within the capillaries is dependent on:

- a. Arterial pressure
- b. Precapillary resistances
- c. Postcapillary resistances
- d. All of the above.

Q.13. Breathing reserve is:

- a. Maximum breathing capacity divided by minute ventilation.
- b. Maximum voluntary ventilation minus respiratory minute volume.
- c. Maximum breathing capacity minus tidal volume.
- d. Maximum voluntary ventilation divided by tidal volume.

Q.14. Administration of atropine may produce:

- a. Weakness of skeletal muscle by blocking acetylcholine receptors in the motor endplate.
- b. Pupillary constriction (meiosis).
- c. An increase in the heart rate at rest.
- d. Excessive salivation.

Q.15. Lung compliance is reduced by all the following EXCEPT:

- a. Asthma.
- b. Fibrosis of the lungs.
- c. Paralysis of respiratory muscles.
- d. Living at high altitude

Oral exam will be on Sunday 10 April 2016 at 9 am in physiology department