


Tanta University	Answer Keys: 1 st part MD (Physics and measurements)	
Faculty of Medicine	Time: 3 hours	
Anesthesia & SICU Dep.	No. of Questions: 4	
Date: 24-8-2021	Total marks: 90	

1. Risk management of electric hazards in the operating room is a component of patient safety during anesthesia: (20 Marks)

A- Define macro-shock and micro-shock. (2 marks)

B- How micro-shock cause ventricular fibrillation? (4 marks)

C- Outline factors which make anesthetized patients at risk of electrical hazards during surgery. (6 marks)

D- Discuss your policy to prevent electrical hazards in the operating room. (8 marks)

2. Arterial blood pressure measurement is one of the standard anesthesia monitoring: (20 Marks)

A- Mention the normal values of the arterial blood pressure in the newborn, infant, child, adolescent, adult and elderly. (2 marks)

B- Compare and contrast invasive and noninvasive arterial blood pressure measurements. (4 marks)

C- What are the common errors encountered in non-invasive blood pressure measurement? (3 marks)

D- Discuss the damping effect in invasive blood pressure measurement. (4 marks)

E- Enumerate complications of radial artery cannulation and outline their prevention. (7 marks)

3. Body temperature should be monitored in patients undergoing surgery lasting > 30 minutes under anesthesia: (20 Marks)

A- Describe the methods and its physical principles for measuring body temperature? (8 marks)

B- Enumerate the different sites for body temperature monitoring, and detail its uses? (5 marks)

C- Mention the factors contributing to heat loss during anesthesia and surgery (3 marks)

D- How you prevent perioperative hypothermia? (4 marks)

4. Tissue perfusion is dependent on flow, pressure and resistance: (30 Marks)

A- Define the flow and what is its unit? (2 marks)

B- What are the differences between laminar flow and turbulent flow? Mention examples in clinical practice? (8 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? (4 marks)

E- What is the Reynolds number? How is it calculated and what is its significance? (4 marks)

F- Explain the difference between the following two values of blood pressure; 80/50 mmHg and 80/30 mmHg. (4 marks)

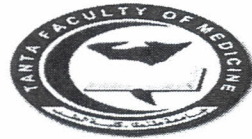
G- What is the significance of systolic blood pressure of 80 mmHg and systemic vascular resistance value of 750 dyn.s/cm.⁵ (4 marks)

..... (Good Luck)

Tanta University
Faculty of Medicine

Department of
Anesthesia.

Date: 17-8-2021



MD 1st Part
Pharmacology
No of questions:3
Time allowed: 3h
Total Marks:45

1- Discuss heparin induced thrombocytopenia (15 Marks)

- (A) What is the mechanism of action of (i) unfractionated heparin? (ii) Low molecular weight heparin? (4marks)
- (B) Types of heparin induced thrombocytopenia? (4marks)
- (C) Diagnosis of heparin induced thrombocytopenia? (4marks)
- (D) What are the alternatives (and their modes of action) to heparin for short-term anticoagulation? (3marks)

2-A 45-year-old woman is having a paravertebral block inserted prior to general anaesthesia for breast surgery developed sudden collapse. (15marks)

- (A) List the possible causes of sudden collapse in this patient. (3 marks)
- (B) What symptoms and signs suggest local anaesthetic toxicity? (3 marks)
- (C) Briefly explain the pharmacological basis of severe local anaesthetic toxicity. (3 marks)
- (D) What is the immediate treatment of local anaesthetic toxicity? (3 marks)
- (E) What follow up is required for this lady? (3marks)

3-You are pre-assessing a ten year old for their first anaesthetic for an appendectomy. His mother tells you there's a history of a reaction to an anaesthetic agent in the family, that an uncle "didn't wake up" for hours after their last anaesthetic. You begin to suspect suxamethonium apnoea. (15 Marks)

- (A) What are the indications for suxamethonium? What is the mechanism of action? (4 Marks)
- (B) What are the side-effects of suxamethonium? (2 Marks)
- (C) Describe the genetic enzymatic variations that can result in prolonged activity of suxamethonium. (2 Marks)

(D) What are the causes of acquired plasma cholinesterase deficiency? (2 Marks)

(E) What are the effects of suxamethonium apnoea? (2 Marks)

(F) What is the management of suxamethonium apnoea? (3 Marks)

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