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## MANIPAL UNIVERSITY

### PG DIPLOMA IN ANAESTHESIOLOGY (DA) EXAMINATION – OCTOBER 2016

SUBJECT: PAPER I: BASIC SCIENCES AS APPLIED TO ANAESTHESIOLOGY: ANATOMY, PHYSIOLOGY, PHARMACOLOGY AND BIOCHEMISTRY, ETHICS, QUALITY ASSURANCE, MEDICOLEGAL ASPECTS

Monday, October 17, 2016

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

✍ Answer all questions.

1. Describe the mechanical events during a cardiac cycle. Explain the factors regulating cardiac output and methods of measuring cardiac output.  
(15 marks)
2. Describe the role of kidney in acid-base, water and electrolyte balance. List the indications for haemodialysis in a patient with chronic kidney disease.  
(15 marks)
3. Write short notes on:
  - 3A. Define Functional Residual Capacity (FRC) and explain the factors affecting FRC.
  - 3B. Explain Bohr effect and double Bohr effect.
  - 3C. What are the physiological changes seen in respiratory and haemopoietic system during normal pregnancy?
  - 3D. Compare and contrast *isoflurane* and *desflurane* with respect to uptake and distribution.
  - 3E. Metabolism, excretion and clinical uses of *atracurium* and *rocuronium*.
  - 3F. Describe the properties of an *ideal* gas and differentiate between laminar flow and turbulent flow.
  - 3G. Write briefly on carbon dioxide absorber used in circle system.
  - 3H. Describe a modern pressure transducer and explain the concepts levelling, zeroing, damping and resonance.
  - 3I. Briefly discuss the anatomy of a typical intercostal nerve and add a note on intercostal nerve block.
  - 3J. Write a short note explaining the concept of advance directives and discuss the validity of do not attempt resuscitation orders in the operation theatre.

(7 marks × 10 = 70 marks)



**MANIPAL UNIVERSITY****PG DIPLOMA IN ANAESTHESIOLOGY (DA) EXAMINATION – OCTOBER 2016****SUBJECT: PAPER II: PRINCIPLES AND TECHNIQUES OF ANAESTHESIA  
INCLUDING REGIONAL ANAESTHESIA**

Tuesday, October 18, 2016

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ Answer to the point as padding of answers will not fetch extra marks.
- ✍ Illustrate your answer with diagrams where appropriate.

1. What are the preoperative predictors of postoperative morbidity and mortality in a patient undergoing a right pneumonectomy? Add a note on three-legged stool approach to preoperative evaluation. What are the recommended precautions you should take with regards to perioperative fluid therapy for this procedure?  
(15 marks)
2. Describe the anaesthetic concerns and anaesthetic management of a 22 year old parturient scheduled for emergency caesarian section for eclampsia. She appears drowsy and her blood pressure is 180/112 mmHg.  
(15 marks)
3. **Write briefly on:**
  - 3A. Anaesthetic techniques for awake craniotomy.
  - 3B. Methods to reduce intracranial tension intraoperatively.
  - 3C. Postoperative pain management options in a child after inguinal herniotomy.
  - 3D. Intraoperative fluid management in a neonate undergoing omphalocele repair.
  - 3E. Discuss the technique of axillary brachial plexus block. Enumerate the complications of this block.
  - 3F. Describe any one technique of performing sciatic nerve block in an adult patient. Give two indications for the same.
  - 3G. A 45 year old male with an infrarenal aortic aneurysm is posted for excision and graft repair. Describe the intraoperative changes observed in various organ systems after cross clamping and on release of the clamp and how these changes can be managed.
  - 3H. A 70 year old male diagnosed as a case of sick sinus syndrome has a pacemaker in situ since six months. He is now posted for a hernioplasty. What are the specific preoperative and intraoperative concerns related to the pacemaker?
  - 3I. A 25 year old male of 80 Kg and no obvious anticipated difficulty in airway desaturates after induction of general anaesthesia. Describe in the form of an algorithm how you would manage his airway.
  - 3J. A 35 year old apprehensive female has a cervical fracture at C4-5 level with no spinal cord injury. She is now posted for an anterior stabilization. Enumerate the options available for securing her airway. Discuss any one in brief.

(7 marks × 10 = 70 marks)



**MANIPAL UNIVERSITY****PG DIPLOMA IN ANAESTHESIOLOGY (DA) EXAMINATION – OCTOBER 2016****SUBJECT: PAPER III: ANAESTHESIA IN RELATION TO ASSOCIATED SYSTEMIC DISEASES, INTENSIVE CARE MEDICINE, PAIN MEDICINE**

Wednesday, October 19, 2016

Time: 14:00 – 17:00 Hrs.

Max. Marks: 100

- ✍ **Answer to the point as padding of answers will not fetch extra marks.**
- ✍ **Illustrate your answer with diagrams where appropriate.**

1. Discuss the perioperative anaesthetic considerations in an 80-year old lady scheduled for laparotomy for a suspected obstructive mass in the large intestine with special emphasis on the concerns related to her age.

(15 marks)

2. Discuss the 2010 American Heart Association (AHA) adult algorithms for shockable and nonshockable rhythms in victims of cardiac arrest.

(15 marks)

3. **Write briefly on:**

3A. Describe the management of a major blood transfusion reaction.

3B. Discuss the airway management principles in a patient with polytrauma.

3C. Discuss your plan for ventilator management of an adult with traumatic flail chest.

3D. Briefly outline the salient features of the current surviving sepsis guidelines for the management of severe sepsis and septic shock.

3E. Discuss the diagnosis, clinical features and management of paracetamol poisoning.

3F. Write briefly on permissive hypercapnea and its applications in critically ill patients.

3G. Outline your plan for central neuraxial technique of labour analgesia for a 30-year old primigravida.

3H. Enumerate the different modalities of analgesia available for perioperative pain management of a 3-year old child scheduled for orchidopexy. Discuss the role of  $\alpha_2$  agonists in the management of acute postoperative pain.

3I. Outline the factors influencing the prevalence of chronic pain following surgery and the interventions that can reduce this risk.

3J. Describe the pathogenesis, clinical features and management of chronic regional pain syndromes.

(7 marks  $\times$  10 = 70 marks)