

April-2001

[KQ 157]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA, HISTORY OF ANAESTHESIA

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. With the help of a diagram, discuss the physiology of neuromuscular transmission. (25)
  2. Classify vaporisers. Draw a diagram and discuss how vapour concentration is maintained in Tec 5 vaporiser. (25)
  3. Write short notes on : (5 × 10 = 50)
    - (a) Desflurane
    - (b) Mandibular nerve block
    - (c) Sir Robert Macintosh
    - (d) Closing volume
    - (e) Ropivacaine.
-

November-2001

[KE 157]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA, HISTORY OF ANAESTHESIA

Time : Three hours

Maximum : 100 marks.

Answer ALL questions.

1. Give an account of the Blood supply of the brain. Describe briefly the factors which govern and alter the blood supply of brain in conscious and unconscious patients. (25)
  2. Describe the anatomy of Larynx. Discuss the changes in vocal cords in various palsys. (25)
  3. Write short notes on : (5 × 10 = 50)
    - (a) First and Second Hyderabad Chloroform commissions.
    - (b) Arthur E. Guedel.
    - (c) Venturi Principle.
    - (d) Beta adrenergic blocking drugs.
    - (e) Acidotic breathing.
-

March-2002

[KG 157]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA, HISTORY OF ANAESTHESIA

Time : Three hour

Maximum : 100 marks

Answer ALL questions.

1. Describe the anatomy of Coronary arteries.  
Mention the factors that influence Coronary blood flow.

2002

(25)

2. Describe the physiology of Neuro-muscular  
transmission and methods of neuro-muscular block. (25)

3. Write briefly on :

(5 × 10 = 50)

(a) 150th year of Anaesthesia.

(b) John Snow.

(c) Hoffman's Degradation.

(d) Hydrocephalus.

(e) Second Gas Effect.

September-2002

[KH 157]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA, HISTORY OF ANAESTHESIA

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. Describe the anatomy of the internal jugular vein, and the technique of cannulation. Enumerate the indications uses and complications. (25)
  2. Describe the sensory nerves of the fingers and hand. By what methods these nerves may be blocked? (25)
  3. Write short notes on : (5 × 10 = 50)
    - (a) Preventing Anaesthetic Accidents
    - (b) John Saveringhaus
    - (c) Airway resistance
    - (d) Hiccup
    - (e) Rectus sheath block.
-

April-2003

[KI 157]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA, HISTORY OF ANAESTHESIA

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

1. With the help of diagram outline the anatomy of brachial plexus, describe any one type of brachial plexus block, detailing its advantages over other blocks. (25)
  2. Define intracranial pressure, what are the factors that control intracranial pressure and discuss the methods used to control intracranial pressure. (25)
  3. Write short notes on : (5 × 10 = 50)
    - (a) Static electricity
    - (b) SI units
    - (c) Exponential elimination
    - (d) Mr. WPG Merton
    - (e) Bispectral index.
-

[KL 157]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS AND  
HISTORY OF ANAESTHESIA

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
forty minutes

M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks

Answer ALL questions.

- (d) Ethylene Oxide sterilization.
  - (e) World Anaesthesia day.
  - (f) Autonomic Hyperreflexia.
  - (g) Induced Hypothermia.
  - (h) Occulo Cardiac reflex.
  - (i) Soda lime.
  - (j) PROSEAL.
- 

I. Essay :    (2 × 15 = 30)

(1) Describe the Anatomy and Physiology of  
Neuromuscular junction and Neuromuscular  
transmission.

(2) Discuss the pulmonary function tests and its  
relevance in anaesthetic practice.

II. Write short notes on :    (10 × 5 = 50)

- (a) Ventilation Perfusion mismatch.
- (b) End tidal CO<sub>2</sub> monitoring.
- (c) Ayres T piece.

[KM 157]

Sub. Code : 2057

**M.D. DEGREE EXAMINATION.**

(Revised Regulations)

Branch X — Anaesthesiology

**Part II**

**Paper I — APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS AND  
HISTORY OF ANAESTHESIA**

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay : (2 × 15 = 30)

(1) Describe the principles and methods of sterilization of equipment. What is the importance of sterilization.

(2) Describe the anatomy of the kidney and discuss counter-current mechanisms.

II. Short notes : (10 × 5 = 50)

(a) Pulse Oximetry

(b) Sir Ivan Magill

(c) Diaphragm

(d) Control of respiration

(e) Mapleson's classification of breathing systems

(f) ASA physical status classification and relevance to clinical practice

(g) Oscillometry

(h) Alveolar gas equation and clinical relevance

(i) Diagrammatically represent the events in cardiac cycle

(j) oxygen toxicity.

[KO 155]

Sub. Code : 2057

II. Short notes :

(10 × 5 = 50)

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Part II

Branch X — Anaesthesiology

Paper I — APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS AND  
HISTORY OF ANAESTHESIA

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay questions :

(2 × 15 = 30)

(1) Describe the metabolism of inhalational anaesthetics and their significance.

(2) Discuss the recent modes of ventilation and their application in clinical practice.

(a) Avagadro's hypothesis.

(b) Rubber gas co-efficient

(c) Mac Intosh

(d) Phase two metabolism

(e) Ros ipsa liquitor

(f) Sterilisation of anaesthetic equipment

(g) Functional residual capacity

(h) Train of four

(i) Blood salvage.

(j) Oxygen manufacturing.



[KO 157]

Sub. Code : 2053

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS AND  
HISTORY OF ANAESTHESIA

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

I. Essay questions : (2 × 15 = 30)

(1) With diagram describe blood supply to brain. Discuss the factors affecting cerebral blood flow. Add a note on effects of anaesthetic agents on cerebral blood flow.

(2) How do you assess the depth of Anaesthesia?

II. Short notes : (10 × 5 = 50)

(a) Beer Lambert Law.

(b) Single Phase Carbondioxide absorption system.

(c) Desflurane Tec Mark 6 Vapouriser.

(d) Effect of intravenous anaesthetic agents on E.E.G.

(e) Shivering during Regional anaesthesia.

(f) Differences between Atracurium and Cisatracurium.

(g) Preservatives added to Local Anaesthetic solutions.

(h) Interactions between carbondioxide absorbants and modern halogenated ethers.

(i) Anaesthetic implications of profound hypothermia and total circulatory arrest.

(j) Advantages and limitations of high dosage opioid anaesthesia.

[KP 155]

Sub. Code : 2057

M.D. DEGREE EXAMINATION.

(Revised Regulations)

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS AND  
HISTORY OF ANAESTHESIA

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
forty minutes

M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks

Answer ALL questions.

I. Essay :

(1) With the help of diagram, describe the anatomy of internal jugular vein, what are the techniques of cannulation of internal jugular vein, and describe the uses as well as hazards to this cannulation.

(20)

(2) Discuss the anatomy and physiology of Neuromuscular junction, how neuromuscular transmission is influenced by drugs/physiological changes and detail monitoring of neuromuscular blockade. (15)

(3) Classify intravenous anaesthetic agents. Discuss in detail about pharmacodynamics and pharmacokinetics of 'PROPOFOL' and its use in T.I.U.A. (15)

II. Write short notes on : (6 × 5 = 30)

(a) Dynamic compliance.

(b) ANOVA.

(c) Mr. Crawford Long.

(d) Minimum monitoring standards in anaesthesia.

(e) Hyper carbia.

(f) Soda lime.

[KP 157]

Sub. Code : 2053

II. Short notes :

(6 × 5 = 30)

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

Paper I — APPLIED BASIC SCIENCES RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA, HISTORY OF ANAESTHESIA

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
forty minutes

M.C.Q : Twenty minutes                      M.C.Q : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay Question :

1. What are liver function tests, How are these functions important to anaesthesiologists. (20)
2. What do you mean by pH, How is it maintained in human body? (15)
3. Describe ventilation/perfusion ration in detail including factors affecting it. (15)

- (a) Cerebral circulation
  - (b) Minimum alveolar concentration
  - (c) Fick's principle
  - (d) Mg<sup>+</sup> ion
  - (e) Sterlization of equipment
  - (f) Train of four.
-

[KQ 142]

Sub. Code : 2053

**M.D. DEGREE EXAMINATION.**

Branch X — Anaesthesiology

**APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA AND HISTORY OF ANAESTHESIA**

Common to :

Part II – Paper I – (Old/New/Revised Regulations)

(Candidates admitted from 1988-89 onwards)

and

Paper I – (For candidates admitted from 2004-2005  
onwards)

Time : Three hours

Maximum : 100 marks

Theory : Two hours and  
forty minutes

Theory : 80 marks

M.C.Q. : Twenty minutes

M.C.Q. : 20 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

I. Essay :

(1) Classify the sympathetic nervous system receptors. Enumerate their site of distribution and functions. Give one test to check functioning of the sympathetic and para sympathetic nervous system. (20)

(2) Describe the physical principles underlying the measurement of carbondioxide concentration in the expired gas using infrared spectroscopy and Raman Spectroscopy. (15)

(3) Define Minimum Alveolar Concentration (MAC) of inhaled anaesthetic agents. Enumerate the physiological and pharmacological factors affecting MAC. (15)

II. Short notes : (6 × 5 = 30)

(a) Hagen poiseuille's law.

(b) Soda lime.

(c) Sir Ivan Magill's.

(d) Scavenging system.

(e) Proliferation of extra junctional receptors and anaesthetic impicators.

(f) Dexamedetomidine.

[KR 142]

Sub. Code : 2053

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

APPLIED BASIC SCIENCE RELATED TO  
ANAESTHESIA INCLUDING PHYSICS IN  
ANAESTHESIA AND HISTORY OF ANAESTHESIA

Common to :

Part II — Paper I — (Old/New/Revised Regulations)

(Candidates admitted upto 2003-04)

and

Paper I — (For candidates admitted from 2004-2005  
onwards)

Time : Three hours                      Maximum : 100 marks

Theory : Two hours and                      Theory : 80 marks  
forty minutes

M.C.Q. : Twenty minutes                      M.C.Q. : 20 marks

Answer ALL questions.

I. Long Essay :

(1) What are the pathophysiologic changes that accompany major thermal injury? What resuscitative measures would you institute in a patient with 50% burns with evidence of inhalation burns? (20)

(2) Classify hypovolemic shock. List the signs and symptoms of each. Discuss the resuscitation of a 30 year old male who sustains a road traffic accident. His vitals are BP - 80/60 mmHg, HR - 140/min, RR - 30/min, hematocrit - 24%. He is brought to the OT for an exploratory laparotomy. (15)

(3) Discuss the differential diagnosis of intraoperative hyperthermia and outline the management of any one of the causes. (15)

II. Short notes : (6 × 5 = 30)

(a) Aorto-caval syndrome

(b) Volume of distribution

(c) Extra junctional receptors

(d) ECG changes in hyperkalemia and its treatment

(e) Define the following and enumerate the formulae used for their calculation :

- shunt fraction

- physiologic dead space

(f) Anion gap and its significance.

**MARCH 2008**

**[KS 145]**

**Sub. Code : 2040**

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

APPLIED BASIC SCIENCE RELATED TO ANAESTHESIA  
INCLUDING PHYSICS IN ANAESTHESIA AND HISTORY OF  
ANAESTHESIA

Common to

Part II — Paper I — (Old/New/Revised Regulations)

(Candidates admitted upto 2003-04)

and

Paper I — (For candidates admitted from 2004-2005 onwards)

**Q.P. Code : 202040**

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

Draw suitable diagrams wherever necessary.

- I. Essay Questions : (2 × 20 = 40)
1. Describe with a neat diagram the formation of brachial plexus. What are the various approaches for a brachial plexus block? What are the complications associated with interscalene approach? (20)
  2. What is homeostasis? Describe in detail the acid-base regulation in our body. (20)
- II. Short Notes : (10 × 6 = 60)
1. Functional Residual Capacity (FRC)
  2. Circle of Willis
  3. Calcium channel blockers
  4. John snow
  5. Venturi Principle
  6. Transducers
  7. Hyponatraemia
  8. Anti cholinergic drugs
  9. Anaerobic metabolism
  10. Nerve supply of female genito-urinary tract
-

March 2009

[KU 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**Branch X – ANAESTHESIOLOGY**  
(Common to all candidates)

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA**  
**INCLUDING PHYSICS IN ANAESTHESIA,**  
**HISTORY OF ANAESTHESIA**

*Q.P. Code : 202040*

**Time : Three hours**

**Maximum : 100 marks**

**Draw suitable diagram wherever necessary**

**Answer ALL questions**

**I. Essay questions :** (2 x 20 = 40)

1. Describe how you would differentiate different types of neuromuscular blockade. Discuss the factors which modify neuromuscular blocking action of muscle relaxants.
2. Enumerate kidney function tests and their importance in anaesthesia.

**II. Write short notes on :** (10 x 6 = 60)

1. Hering – Bruer reflex.
2. Hyperkalemia.
3. Sir Robert Macintosh.
4. Functional residual capacity.
5. Low flow anaesthesia.
6. Heat and moisture exchanger.
7. Poiseuille's Law.
8. Trans oesophageal echocardiography.
9. Milrinone.
10. Circle of Willis.

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September 2009

[KV 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**Branch X – ANAESTHESIOLOGY**

**(Common to all candidates)**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA  
INCLUDING PHYSICS IN ANAESTHESIA,  
HISTORY OF ANAESTHESIA**

*Q.P. Code : 202040*

**Time : Three hours**

**Maximum : 100 marks**

**Draw suitable diagram wherever necessary**

**Answer ALL questions**

**I. Essay questions : (2 x 20 = 40)**

1. Describe the anatomy and physiology of neuro muscular function.  
Discuss the methods of monitoring neuro muscular block.
2. Describe the principles of external defibrillators and its clinical uses.  
How is it different from automated external defibrillator.

**II. Write short notes on : (10 x 6 = 60)**

1. I and II Hyderabad chloroform commission.
2. James Young Simpson.
3. PIN Index System.
4. Uses and problems of anaesthetic data management system.
5. Capnography
6. Double lumen ET tubes.
7. Anaesthesia gas concentration monitors
8. Rigid laryngoscope blades
9. Functional analysis of Bain's circuit.
10. Gas plasma sterilization.

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March 2010

[KW 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**Branch X – ANAESTHESIOLOGY**

**Paper – I (for candidates admitted from 2004-05 to 2007-08) and  
Part I – (for candidates admitted from 2008-2009 onwards)**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA  
INCLUDING PHYSICS IN ANAESTHESIA,  
HISTORY OF ANAESTHESIA**

*Q.P. Code : 202040*

**Time : Three hours**

**Maximum : 100 marks**

**Draw suitable diagram wherever necessary**

**Answer ALL questions**

**I. Essay questions :**

**(2 x 20 = 40)**

1. Describe the anatomy of sympathetic nervous system and enumerate the functions.
2. Discuss the epidemiology and pathophysiology of anaphylaxis in anaesthesia practice. Describe the methods of identification, prevention and treatment.

**II. Write short notes on :**

**(10 x 6 = 60)**

1. Hypermagnesemia.
2. Virgenia apgar.
3. Desflurane.
4. Placental barrier.
5. Hypoxic pulmonary vasoconstriction.
6. TEC 6 vaporizer.
7. Henry's law.
8. Peripheral nerve stimulator.
9. Isoproterenol.
10. Cerebral steal syndrome.

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September 2010

[KX 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**Branch X – ANAESTHESIOLOGY**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA INCLUDING  
PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**

**Paper – I (for candidates admitted from 2004-05 to 2007-08) and  
Part I - (for candidates admitted from 2008-2009 onwards)**

*Q.P. Code : 202040*

**Time : Three hours**

**Maximum : 100 marks**

**Draw suitable diagram wherever necessary.**

**Answer ALL questions.**

**I. Essay questions :**

**(2 X 20 = 40)**

1. Describe the Anatomy of the Brachial plexus; briefly describe the various types of brachial plexus blocks and describe in detail about any one block.
2. Describe in detail the various intravenous induction agents used in Anaesthesia.

**II. Write short notes on :**

**(10 X 6 = 60)**

1. Cerebral circulation.
2. Coagulation Pathway.
3. Venturi Principle.
4. Hyderabad chloroform commission.
5. John Snow.
6. Hoffmann Elimination.
7. Oxygen Cascade.
8. Occulo Cardiac Reflex.
9. GABA receptor.
10. Reynolds number.

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MAY 2011

[KY 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**  
**BRANCH X – ANAESTHESIOLOGY**  
**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA INCLUDING**  
**PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**

*Q.P. Code : 202040*

**Time : 3 hours**  
**(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**I. Elaborate on :**

	<b>Pages</b>	<b>Time</b>	<b>Marks</b>
	<b>(Max.)</b>	<b>(Max.)</b>	<b>(Max.)</b>
1. Describe the Anatomy of Caudal epidural space and discuss Caudal anaesthesia in pediatrics.	11	35	15
2. Describe in detail the various muscle relaxants used in anaesthesia and enumerate the causes of inadequate reversal of neuromuscular blocking agents.	11	35	15

**II. Write notes on :**

1. Oxygen dissociation curve.	4	10	7
2. Supraglottic airway devices.	4	10	7
3. Stellate ganglion block.	4	10	7
4. Phase 2 block.	4	10	7
5. Hagen-Poiseuille equation.	4	10	7
6. 2, 3 DPG.	4	10	7
7. Osmolality.	4	10	7
8. Hoffmann elimination.	4	10	7
9. Venturi principle.	4	10	7
10. Mallampatti classification.	4	10	7

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October 2011

[KZ 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**BRANCH X – ANAESTHESIOLOGY**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA INCLUDING  
PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**

*Q.P. Code : 202040*

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**I. Elaborate on :**

**Pages Time Marks  
(Max.) (Max.) (Max.)**

- |  |    |    |    |
|--|----|----|----|
| 1. Describe the lateral wall of nose. Explain its importance in clinical anaesthesiology.  | 11 | 35 | 15 |
| 2. On what Physical principles Flow meter work.<br>How they are guarded against delivering hypoxic mixture.<br>How will you detect malfunction including in high altitude? | 11 | 35 | 15 |

**II. Write notes on :**

- |  |   |    |   |
|--|---|----|---|
| 1. Cox 2 inhibitors.                                   | 4 | 10 | 7 |
| 2. Low molecular weight heparins.                      | 4 | 10 | 7 |
| 3. Statins.  | 4 | 10 | 7 |
| 4. Etomidate.  | 4 | 10 | 7 |
| 5. Bioavailability.                                    | 4 | 10 | 7 |
| 6. Liquid Oxygen.                                      | 4 | 10 | 7 |
| 7. Boyles laws and its application in Anaesthesiology. | 4 | 10 | 7 |
| 8. Crawford long.                                      | 4 | 10 | 7 |
| 9. Surface tension.                                    | 4 | 10 | 7 |
| 10. Doppler effect.                                    | 4 | 10 | 7 |

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April 2012

[LA 145]

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**BRANCH X – ANAESTHESIOLOGY**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA INCLUDING  
PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**

*Q.P. Code : 202040*

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**I. Elaborate on :**

**Pages Time Marks  
(Max.) (Max.) (Max.)**

- |   |    |    |    |
|---|----|----|----|
| 1. Describe the arterial circulation of the heart with the aid of a diagram mentioning the unique features of coronary blood flow. Explain the Goldman's cardiac risk index and its importance to the anesthesiologist. | 16 | 35 | 15 |
| 2. Briefly describe Hepatic blood flow. How is it affected by anesthetics and adjuvants.  | 16 | 35 | 15 |

**II. Write notes on :**

- |  |   |    |   |
|--|---|----|---|
| 1. Sir John Snow.  | 4 | 10 | 7 |
| 2. Carbon di oxide absorption systems in the anesthesia and their uses.    | 4 | 10 | 7 |
| 3. What are the new generation pulse oximeters and their Uses.             | 4 | 10 | 7 |
| 4. Explain High Dose Opioid Anesthesia.                                    | 4 | 10 | 7 |
| 5. What is context sensitive half time? What is its clinical significance? | 4 | 10 | 7 |
| 6. Nerve blocks for Faciomaxillary Surgery.                                | 4 | 10 | 7 |
| 7. Types of Anesthesia ventilators.  | 4 | 10 | 7 |
| 8. Reynald's Number and its application in clinical Anesthesia.            | 4 | 10 | 7 |
| 9. Causes and Management of atrial fibrillation.                           | 4 | 10 | 7 |
| 10. Thiopentone sodium   | 4 | 10 | 7 |

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[LB 145]

OCTOBER 2012

Sub. Code: 2040

**M.D. DEGREE EXAMINATION  
BRANCH X – ANAESTHESIOLOGY  
APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA  
INCLUDING PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA  
Q.P. Code : 202040**

**Time : 3 hours  
(180 Min)**

**Maximum : 100 marks**

**Answer ALL questions in the same order.**

**I. Elaborate on :**

	<b>Pages (Max.)</b>	<b>Time (Max.)</b>	<b>Marks (Max.)</b>
1. Describe portal circulation. Discuss patho-physiology of cirrhosis of liver.	16	35	15
2. Write a note on anatomy of coronary arteries. Discuss the pharmacological management of Ischemic Heart Disease.	16	35	15

**II. Write notes on :**

1. Enumerate Antihypertensives and discuss the peri operative use of antihypertensives ?	4	10	7
2. What are the methods of Airway assessment?	4	10	7
3. Describe Low flow technique.	4	10	7
4. What is Temperature compensation in vaporizers?	4	10	7
5. Discuss the uses of Hydroxy ethyl starch.	4	10	7
6. What is D-Tubocurarine? Why is it not being used in present day practice ?	4	10	7
7. Patho physiology of Halothane Hepatitis.	4	10	7
8. What is Hypoxic pulmonary vasoconstriction and its role in anesthesia?	4	10	7
9. Discuss the uses of Mannitol.	4	10	7
10. How do you measure Peak Expiratory Flow Rate ? What is its importance?	4	10	7

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(LC 145)

APRIL 2013

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**BRANCH X –ANAESTHESIOLOGY**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA INCLUDING  
PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**

*Q.P.Code: 202040*

**Time: Three Hours**

**Maximum: 100 marks**

**I. Elaborate on:**

**(2X15=30)**

1. Describe the physiological changes associated with different postures during anaesthesia.
2. Describe the anatomy and electrophysiology of cardiac pacemakers and the conduction systems. Give an account of the anti-arrythmic drugs.

**II. Write notes on:**

**(10X7=70)**

1. Definition, measurement and significance of closing capacity.
2. Safety mechanisms to prevent the delivery of hypoxic mixture in anaesthesia machines.
3. Classification of anaesthesia breathing systems
4. Mechanisms and effects of the Pressurising and pumping effect.
5. Definition, advantages, problems and management of Low flow anaesthesia.
6. Effects of the Valsalva maneuver and its uses in anaesthesia practice
7. Contributions of Sir Ivan whiteside Magill to anaesthesia practice.
8. The mechanism and types of channel block and drugs producing this.
9. The stimulus, effect and mechanism in Cushing`s reflex.
10. Enumerate the Supra-glottic airways with advantages and disadvantages of each.

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[LD 145]

OCTOBER 2013

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**

**BRANCH X – ANAESTHESIOLOGY**

**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA**

**INCLUDING PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**

*Q.P.Code: 202040*

**Time: Three Hours**

**Maximum: 100 marks**

**I. Elaborate on:**

**(2 x 15 = 30)**

1. Describe the anatomy of larynx with differences in adults and children. Explain with diagram the various nerve palsies of larynx.
2. Name the adrenergic agonists and antagonists. Describe in detail their uses in anaesthetic practice.

**II. Write notes on:**

**(10 x 7 = 70)**

1. Discuss the factors influencing vaporizer output.
2. SIR IVAN MAGILL and his contribution to anaesthesia.
3. Alveolar gas equation and its importance in anaesthesia.
4. I-GEL Airway – Description and benefits.
5. Discuss the physical principles of pulse oximetry.
6. Functional Residual Capacity – Definition and factors affecting FRC.
7. Describe the Anaesthesia Machine check protocol.
8. Differential Nerve Block – Description and uses.
9. Ergometrine Vs Oxytocin – Pharmacology, uses dose and side effects.
10. Context Sensitive half time – Definition, its relation to elimination half time and time to recovery.

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[LE 145]

APRIL 2014

Sub. Code: 2040

**M.D. DEGREE EXAMINATION**  
**BRANCH X –ANAESTHESIOLOGY**  
**APPLIED BASIC SCIENCES RELATED TO ANAESTHESIA INCLUDING**  
**PHYSICS IN ANAESTHESIA, HISTORY OF ANAESTHESIA**  
*Q.P. Code :202040*

**Time : Three Hours**

**Maximum : 100 marks**

**I. Elaborate on:** **(2X15=30)**

1. What are the indications of one lung ventilation. Discuss the pathophysiology of hypoxemia during one lung ventilation. Discuss the treatment of hypoxemia during one lung ventilation.
2. How do you do airway examination of an adult. Explain the American Society of Anaesthesiologist's difficult airway algorithm.

**II. Write notes on:** **(10X7=70)**

1. Draw and explain left ventricular pressure – volume loop.
2. Oxyhemoglobin dissociation curve.
3. Minimum alveolar concentration.
4. Describe the neuro muscular monitoring characteristics of non depolarising neuromuscular blocking drugs .
5. Discuss use of Fenoldopam and Dopamine in high risk renal dysfunction patients.
6. Hagen-Poiseuille equation and its anaesthetic implications.
7. W.T.G.Morton.
8. Anaesthetic implications of Angiotensin converting enzyme inhibitors drugs.
9. Describe the anatomy of coronary arterial blood supply.
10. Describe a single breath gas wash out curve of capnography.

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