March-1990

M.D. DEGREE EXAMINATION, MARCH 1990.

Branch X — Anaesthesiology

Part II

APPLIED BASIC SCIENCES

Time : Three hours.

Answer ALL the questions.

1. Describe the anatomy of 'Tracheo-broncheal tree' with the help of a diagram.

2. Discuss the changes in respiratory and cardio-vascular dynamics resulting from long term I.P.P.V. — What is their significance ?

3. What are alpha and beta receptors ? Describe the pharmacology of drugs commonly used to stimulate or block these receptors.

March-1990

6058

M.D. DEGREE EXAMINATION, MARCH 1990

Branch X - Anaesthesiology

Part II

Paper I - APPLIED BASIC SCIENCES

Time : Three hours.

SECTION I

1. Discuss the factors affecting the performance of the injector (venturi) and applications of this in clinical anaesthesiology practice.

2. Classify diuretics. Describe their modes of action and their significance to anaesthesiologist.

SECTION II

3. Discuss the maintenance of acid-base balance in the body and its inter-relationship with fluid & electrolyte balance.

M.D. DEGREE EXAMINATION, OCTOBER 1996

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES

Time : Three hours

Answer ALL questions.

1. Describe the physiology of maintenance of 'acid-base balance.

2. Describe the patho-physiology of jaundice and its causes in a new-born infant.

3. Describe the pharmacology of the phenothiazene group of drugs.

M.D. DEGREE EXAMINATION, MARCH 1991.

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES

Time : Three hours.

Answer ALL questions.

1. Discuss the drug interactions in relation to anaesthesia practice.

2. Describe the physical principles involved in the vaporisation of liquid anaesthetics and the mechanism of an ideal vaporisor.

3. Write briefly on :

(a) The physiological changes of positioning.

(b) Isoflurane.

(c) Anatomy of Ist rib and its relations.

(d) Chronic anaemia and its effects on various body systems.

(e) End tidal CO_2 monitoring.

M.D. DEGREE EXAMINATION, SEPTEMBER 1991.

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES

Time : Three hours. Maximum : 100 marks.

1. Describe the bronchopulmonary segments of the lungs. How does this anatomical knowledge aid the anaesthesiologist ? (25 marks)

2. Describe the foetal circulation and enumerate the changes that occur in the first few hours after birth. (25 marks)

3. Write short notes on :

(*a*) Isoflurane.

(*b*) Oxygen concentrators.

(*c*) The *Coanda* effect.

(*d*) The "first pass" effect.

(*e*) The Swan-Ganz Catheter.

(5×10=50 marks)

M.D. DEGREE EXAMINATION, MARCH 1992

Branch X — Anaesthesiology

Part II

Paper I — APPLIED BASIC SCIENCES

(Old/New Regulations)

Time : Three hours Maximum : 100 marks

1. Describe the physiology of Neuromuscular transmission at a somatic nerve ending. Briefly discuss the pharmacology of Vecuronium. (25 marks)

2. Briefly describe the anatomy of the vertebral canal and its contents. (25 marks)

3. Write short notes on -

(a) Propofol.

(b) The Hofmann elimination.

(c) Transoesophageal echocardiography.

(d) Differential lung ventilation.

(e) The Poynting Effect (Overpressure effect).

(5 × 10 = 50 marks)

M.D. DEGREE EXAMINATION SEPTEMBER, 1992

Bramch X - Anaesthesiology

PART II

Paper I - APPLIED BASIC SCIENCES

Time:Three hours Maximum:100 marks

Answer ALL questions

1. Describe the bronchopulmonary segments of the lungs. How does this anatomical knowledge aid the anaesthesiologist? (25 marks)

2. Describe the physical principles involved in the vaporisation of liquid anaesthetics and the mechanism of an ideal vaporisor. (25 marks)

3. Write short notes on:

   (a) The physiological changes of positioning.

   (b) Oxygen concentrators

   (c) Anatomy of 1st rib and its relation

   (d) End tidal CO2 monitoring

   (e) The swan-ganz catheter (5x10=50 marks)

November-1993

[PR 382]

M.D. DEGREE EXAMINATION

Branch X — Anaesthesiology

(Old/New Regulations)

Part II

Paper I — APPLIED BASIC SCIENCES

Time : Three hours. Maximum : 100 marks.

Answer ALL questions.

1. With the help of suitable diagrams describe the extra-cranial course of maxillary nerve and any one method of blocking it. (25)

2. List the requisites of an ideal vapouriser. What is meant by vapouriser in circle (VIC) and vapouriser out of circle (VOC) ? Mention their advantages and disadvantages. (25)

3. Write short notes on :

   (a) Confidence limits.

   (b) Second gas effect.

   (c) Alpha-2 adrenergic agonist.

   (d) Chloride shift.

   (e) Anion gap. (5×10=50)

———

April-1994

[VM 1086]

M.D. DEGREE EXAMINATION

Branch X — Anaesthesiology

(Old/New Regulations)

Part II

Paper I — APPLIED BASIC SCIENCES

Time : Three hours. Maximum : 100 marks

Answer ALL questions.

1. With the help of suitable diagram describe the formation of cervical plexus. How will you perform deep cervical block ? (25)

2. Describe the formation and circulation of cerebro-spinal fluid. What are the factors influencing intracranial pressure ? (25)

3. Write short notes on :

(*a*) Drug interactions in relation to anaesthesia practice.

(*b*) Free radicals of oxygen.

(*c*) Safety devices in anaesthesia machines.

(*d*) Informed consent.

(*e*) Oxygen dissociation curve and its significance. (5 × 10 = 50)

April-1995

[SB 188]

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

(Old/New Regulations)

Part II

Paper I — APPLIED BASIC SCIENCES

Time : Three hours Maximum : 100 marks

Answer ALL questions.

1. Describe the mode of action of local analgesic drugs. What are the pharmacological requisites of an ideal local analgesic? (25)

2. Describe the physiological regulation of cerebral blood flow. What are the effects of different anaesthetic agents and techniques on cerebral blood flow? (25)

3. Write short notes on : (5 x 10 = 50)

(a) APGAR score.

(b) Visual analogue scale.

(c) Synchronised intermittant mandatory ventilation (SIMV).

(d) Enzyme induction.

(e) Bain circuit.

October-1996

RK 145

M.D. DEGREE EXAMINATION

Branch X - Anaesthesiology

(Revised Regulations)

Part II

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

Time: Three hours Max.marks:100

Answer All Questions

1. Describe briefly the working principles of pulse oximetry and capnography. Discuss their role in anaesthesia practice. (25)

2. Discuss in detail the development of inhalational anaesthetic agents. Discuss in detail Isoflurane. (25)

3. Write briefly on:

   (a) Circle absorption system

   (b) Esmolol

   (c) Physiological responses to Endotracheal intubation

   (d) Peter Safar

   (e) SIMV

(5x10=50)

April-1997

M.D. DEGREE EXAMINATION

Branch X - Anaesthesiology

(Revised Regulations)

Part II

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

Time: Three hours Max.marks:100

Answer All Questions

1. Describe the physiology of normal neuro-muscular transmission. (25)

2. Classify adrenergic receptors. Write on the clinically used drugs acting on any one sub-type of adrenergic receptors. (25)

3. Write briefly on:

   (a) Co-axial anaesthetic breathing systems

   (b) Effect of halothane on liver

   (c) E.C.G. changes in hyperkalaemia

   (d) Poiseuille's law

   (e) Aorto-caval compression.

(5x10=50)

October-1997

MS 150

M.D. DEGREE EXAMINATION

Branch X - Anaesthesiology

(Revised Regulations)

Part II

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

Time: Three hours Max. marks:100

Answer All Questions

1. With the help of a diagram, describe the anatomy of epidural space. What is the fate of local anaesthetics in the epidural space? What are the factors controlling the spread of epidural block? (25)

2. What is Central Venous Pressure? What are the different approaches for central venous cannulation? Discuss the merits and demerits of each technique. (25)

3. Write briefly on:

   (a) Intravenous regional anaesthesia

   (b) Pin index system

   (c) Minimum alveolar concentration

   (d) Steroids in anaesthetic practice

   (e) Post-spinal headache.

(5x10=50)

April-1998

[SV 160]

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

(Revised Regulations)

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 tracheo–bronchial tree. (25)

2. Briefly describe hepatic blood flow. How is hepatic blood flow altered by anaesthetic and adjuvant drugs? (25)

3. Write notes on : (5 × 10 = 50)

(a) Apparent volume of distribution of drugs

(b) Glycopyrronium

(c) Closing capacity of lungs

(d) Laryngeal Mask Airway (LMA)

(e) William Thomas Green Morton.

October-1998

[SM 157]

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

(Revised Regulations)

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, describe the formation and distribution of a typical spinal nerve. Enumerate the sites at which the intercostal nerve can be blocked and describe *any one* such technique. (15 + 4 + 6 = 25)

2. Describe the formation of the circle of Willis. Define *cerebral perfusion pressure* and discuss the factors that affect cerebral perfusion pressure. (10 + 3 + 12 = 25)

3. Write briefly on : (5 × 10 = 50)

(a) Diffusion hypoxia.

(b) Factors affecting laminar flow of fluids through a tube.

(c) Timed expiratory spirogram (Forced vital capacity manoeuvre).

(d) Scavenging systems for anaesthesia breathing circuits.

(e) Sir Ivan Magill.

April-1999

[SG 157] **Sub. Code : 2040**

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

(Revised Regulations)

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, describe the formation of the lumbar plexus. Enumerate the three nerves blocked in the *"3-in-1 block"* and describe how you would perform this block. (12 + 3 + 10 = 25)

2. Describe the distribution of ventilation and perfusion in the *awake individual in the upright position.* Develop the alterations that occur in the distribution of ventilation and perfusion in an *anaesthetised patient with a closed chest breathing spontaneously* in (a) *the supine position and* (b) *in the lateral decubitus position.* (10 + 7 + 8 = 25)

3. Write briefly on : (5 × 10 = 50)

(a) Boyle's law and its applications in anaesthesia.

(b) Hydroxyethyl starch.

(c) Principles of mainstream capnography.

(d) Link–25 mechanism (in flowmeter bank of anaesthesia machine)

(e) Ralph Waters.

October-1999

[KA 157] **Sub. Code : 2040**

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. Discuss the classification, basic Pharmacology, Pharmacokynetics and Pharmacodynamics of alpha two adrenergic agonists. (25)

2. Discuss the Electrical hazards in the operation theatre and the various steps to prevent and minimize them. (25)

3. Write short notes on : ($5 \times 10 = 50$)

(a) Poynting effect

(b) What are autocoids, discuss the mechanism of action of prostaglandin inhibitors analgesics

(c) John Sials Lundy

(d) Oxygen concentrators

(e) Sevoflurane.

———

April-2000

[KB 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 MAR 2000 Maximum : 100 marks

1. With the help of a diagram, describe the formation of the brachial plexus. Describe one method of performing brachial plexus block. (25)

2. Classify breathing systems. Discuss the conduct of low flow anaesthesia. (25)

3. Write short notes on :
   (a) Propofol
   (b) Heat moisture exchanger
   (c) Ralph waters
   (d) Mixed venous oxygen tension
   (e) Sevoflurane. (5 × 10 = 50)

October-2000

[KC 157] **Sub. Code : 2057**

M.D. DEGREE EXAMINATION.

Branch X — Anaesthesiology

(Revised Regulations)

Part II

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

Time : Three hours SEP 2000 Maximum : 100 marks

Answer ALL questions.

1. Describe briefly various "Breathing Circuits". What factors will influence you in choosing a breathing circuit for paediatric patients. (25)

2. Describe the pathways of pain–stimuli. Mention the various methods of post–operative analgesia. (25)

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

   (a) Sir. W.T.G. Morton.

   (b) Oculo cardiac reflex.

   (c) Diffusion–Hypoxia.

   (d) Magnesium and Anaesthetist.

   (e) Methods of measuring blood–loss.

———————