



OPJS UNIVERSITY, CHURU(RAJASTHAN)

Syllabus

For

Certificate in Anesthesia Technology (CAT)

Duration of Course : 1 year

S.No.	Paper code	Name of Papers	M.M.(T-S-P)
1.	CAT-101	Anatomy and Physiology & Introductory Biology	50+30+20=100
2.	CAT-102	Anesthesia Equipment, Drugs & Techniques	50+30+20=100
3.	CAT-103	Biochemistry & Microbiology	50+30+20=100
4.	CAT-104	Communication & Soft Skills.	50+30+20=100
5.	CAT-105	Practical	50

Details of Syllabus

CAT-101-Anatomy and Physiology & Introductory Biology

Anatomy:-

1. Introduction to Anatomy & Histology, Structure of cell, epithelial tissue, Muscular tissue, nervous tissue.
2. Skeletal system-Structure of Bones, Types of bones, Bones of cranium, face, vertebral column, Upper & lower limbs, fracture of bones, movements of joints.
3. Muscular System- Structure and types of muscles in human body.
4. Circulatory system- Structure of heart, names and position of main blood vessels.
5. Digestive system- Parts of gastrointestinal tract and associated glands.
6. Respiratory system- Parts of respiratory system.
7. Urinary system- Parts of urinary system.
8. Skin & sense organs- Eye, Ear, Nose, Tongue(taste buds)
9. Nervous system- Parts of Brain, spinal cord. Cranial nerve, spinal cord, Peripheral nerves, Blood supply of Brain and spinal cord.
10. Reproductive system- male & female reproductive organs.
11. Endocrine Glands- Thyroid, Parathyroid, Adrenal, pituitary, pancreas and sex glands.

Physiology :-

1. Blood- Composition and functions of Blood, Hemoglobin, Blood groups, blood coagulation, body fluids, blood volume.
2. Cardiovascular System- Circulation of blood, function of heart and blood vessels, control of heart rate, pulse, regulation of blood pressure.
3. Respiratory System- Functions of lungs, mechanism of breathing & exchange of gases in the lungs, regulation of respiration, respiration disorder like anoxia, Hypoxia, dyspnea, lung function test.
4. Digestive systems- Digestion and absorption of food.
5. Excretory system- Structure and function of kidney and urinary bladder, mechanism of urine formation, Disorder of Kidney, ureter, urinary bladder.

6. Nervous system- Neurons & its functions, functions of CNS, ANS, physiology of vision, hearing sensation. Cerebrospinal Fluid (C.S.F), Cerebral Blood flow, cerebral perfusion pressure, intra cranial pressure.
7. Reproductive system- physiology and Female reproductive organs.
8. Endocrine Glands- functions of endocrine glands and hormones secreted by them.

Introductory Biology :-

1. Living World- Biology & its branches, characters of living organisms.
2. Cell & cell division:- cell as a basic unit of life, unicellular and multi cellular organisms, compound microscope, electron microscope.
3. Cell organelles & their functions-
4. Genetics- Continuity of life - heredity, variation; Chromosomes - sex linked inheritance; mutation DNA as a genetic material - its structure and replication; structure of RNA and its role in protein synthesis; Gene expression – transcription and translation in prokaryotes and eukaryotes.

CAT-102- Anesthesia Equipment, Drugs & Techniques.

Anesthesia Equipment (PART-A)

1. Boyle's Machine & It's functioning
2. Magill's breathing circuit, Bains breathing circuit, pediatrics anesthesia circuit
3. Gas cylinders & flow meters
4. Carbon dioxide absorption canisters.
5. Suction apparatus foot operated, electrically operated
6. Ambu bag & laryngoscope, endo tracheal tubes
7. catheters, face masks, ventimasks

Drugs(PART-B)

1. General Principles- Pharmacological classification of Drugs, Route of drug administration, precautions in administration, principles of drug toxicity, prevention & treatment of poisoning adverse drug reaction.
2. Sedatives & hypnotics, barbiturates, morphine & others.
3. Important groups of drugs- antimicrobial agents anti allergy drugs, anti-diuretics, NSAIDS.
4. Pre-anesthetic medication
5. Local-Anesthetic agents
6. Spinal anesthetic agents

7. General anesthetic agents .

CAT-103- Biochemistry & Microbiology

BIOCHEMISTRY (PART-A)

Estimation of calcium, sodium, potassium, glucose, ABG, BT& CT

MICROBIOLOGY (PART-B)

CHAPTER 1: INTRODUCTION TO MICROBIOLOGY:

Discovery of micro organisms. Classification and general characteristics of microorganisms, nutritional requirements of Micro-organisms.

CHAPTER 2: PRINCIPLES OF MICROBIAL CONTROL: Sterilization, importance of sterilization in OT techniques various methods-physical UV rays

CHAPTER 3: Biomedical waste management.

CHAPTER 4: Hospital acquired infections.

CAT-104- Communication & Soft Skills.

UNIT I.

Essentials of Grammar:

- Parts of Speech • Punctuation • Vocabulary Building • Phonetics

UNIT II.

Office Management:

- Types of Correspondence • Receipt and Dispatch of Mail • Filing Systems
- Classification of Mail. • Role & Function of Correspondence • MIS • Managing

UNIT III.

Group Discussion & Presentation:

- Definition • Process • Guidelines • Helpful Expressions • Evaluation

(Note: Every student shall be given 15 minutes. of presentation time & 45 minutes of discussion on his/ her presentation.)

CAT-105- Practical

1. Anatomy- Identification of bones & other organs of the body & viva voice as theory syllabus
2. Physiology- venepuncture, finger pricking techniques, HB estimation, blood groups, HIV, BT, CT & viva voice
3. Anaesthesia equipment & drugs – Identification & demonstration of the working of equipments & viva voice
4. Study of parts of compound microscope
5. Instrument trolley setting for common anaesthetic procedures.
6. Estimation of calcium, sodium, potassium, glucose, ABG, BT& CT
7. Methods of scrubbing, donning of gown, gloves wearing, head covers & mask .
