



# UNIVERSITY OF JAMMU

(NAAC ACCREDITED A + GRADE UNIVERSITY)  
Baba Sahib Ambedkar Road, Jammu-180006 (J&K)

## NOTIFICATION (20/Jul/Adp/13)

It is hereby notified for the information of all concerned that the Vice-Chancellor, in anticipation of the approval of the Competent Bodies, has been pleased to authorize the adoption of Regulations & Curriculum governing the degree of **Bachelor of Science in Operation Theatre Technology (B.Sc. Operation Theatre Technology)** from the Academic Session 2020-21 onwards as given in the **Annexure-I & II**.

*The Regulations & Curriculum of the course is available on the University Website:  
[www.jammuuniversity.ac.in](http://www.jammuuniversity.ac.in).*

Sd/-  
DEAN ACADEMIC AFFAIRS

No. F.Acd/III/20/1229-1234  
Dated: 07/08/2020

Copy for information & necessary action to:-

1. Dean Faculty of Medical Sciences
2. Principal, GMC, Jammu
3. C.A to the Controller of Examinations
4. Assistant Registrar (Exams/Confidential)
5. Incharge University Website

Sumilasharma  
5/8/2020  
Deputy Registrar (Academic)  
5/8

# Regulations & Curriculum for Bachelor of Science Degree Courses In

## B.Sc Operation Theatre Technology

### Courses offered in Allied Health Sciences:

1. B.Sc Medical Lab Technology.
2. B.Sc Radiography.
3. B.Sc Cardiac Care Technology
4. B.Sc Operation Theatre.
5. B.Sc Respiratory Care Technology.
6. B.Sc Anesthesia Technology.
7. B.Sc Neuro Sciences Technology.
8. B.Sc Renal Dialysis.

### A. INTRODUCTION

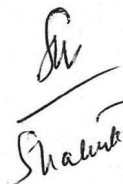
B.Sc (Allied Health Sciences) course is aimed at training students to prepare them as qualified physician assistants who will be able to meticulously assist the concerned specialist in handling the various illnesses. This program is a taught course that covers relevant topics and specialized areas of knowledge as opted. The aim of this B.Sc Program is to provide a through training to the candidates through formal lectures and or seminars and practical programs which culminate in a internship course that finally prepares the student for the rigors of the medical world.

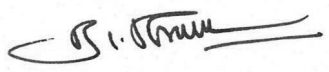
### B. SHORT TITLE AND COMMENCEMENT

These Regulations shall be called the "Regulations for B.Sc (Allied Health Sciences) Course". These regulations shall be deemed to have come into force from the academic year \_\_\_\_\_. These regulations are subject to modifications as may be approved by the concerned faculty / Board of studies from time to time.

### C. ELIGIBILITY FOR ADMISSION

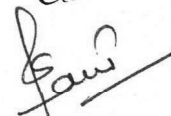
- a) A candidate seeking admission to the Bachelor of Science Degree Courses in the Allied Health Sciences course from SI.No. 1 to 8 shall have passed the 10+2 or equivalent examination from a recognized Board / University with Physics, Chemistry & Biology as principle subjects of study.


  
Shalini Sharma

  
(MR. J. C. FRANK)

Munish Kumar  
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(SONAM SHARMA)

  
Jai

  
Kheena Joshi

- b) Lateral entry to second year for allied health science courses for candidates who have passed diploma program from the Government Boards and recognized by Jammu and Kashmir State Paramedical Council and shall have passed 10+2 with Physics, Chemistry & Biology as principal subjects and these students are eligible to take admission on lateral entry system only in the same subject studied at diploma level.

#### NOTE:

- a. The candidate shall have passed individually in each of the principal subjects.
- b. Candidates who have completed diploma or vocational course through Correspondence shall not be eligible for any of the courses mentioned above.
- c. A candidate should have completed the age of 17 Years as on 31<sup>st</sup> December of the year of admission.

#### D. DURATION OF THE COURSE

Duration shall be for a period of three and half years including six months of Internship.

#### E. MEDIUM OF INSTRUCTION

The medium of instruction and examination shall be in English.

#### F. SCHEDULE OF EXAMINATION

The University shall conduct two examinations annually at an interval of not less than 4 to 6 months as notified by the university from time to time. A candidate who satisfies the requirement of attendance, progress and conduct as stipulated by the university shall be eligible to appear for the university examination. Certificate to that effect shall be produced from the head of the institution along with the application for examination and the prescribed fee.

#### G. SCHEME OF EXAMINATION

There shall be three examinations one each at the end of 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> year.



#### ✦ ELIGIBILITY FOR THE EXAMINATION :

The Examination each year shall be open to :

- a) A regular student who produces the following certificates signed by the Head of the Department / Principal of the College :
  - i. Certificate of good character.
  - ii. Certificate that the student attended the required number of lectures as prescribed under statutes.
  - iii. Certificate that the student has qualified the sessionals / Clinicals etc.
  
- b) A candidate who has otherwise eligible to appear in the Examination in the particular year but :
  - i. Could not appear due to genuine reason (to be certified by an appropriate authority).
  - ii. Was unable to pass the examination in any paper (s).

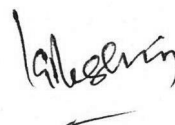
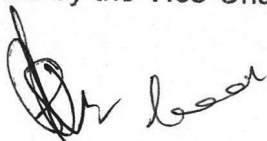
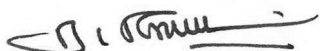
#### H. ATTENDANCE

Every candidate should have attended at least 80% of the total number of classes conducted in an academic year from the date of commencement of the term to the last working day as notified by university in each of the subjects prescribed for that year separately in theory and practical. Only such candidates are eligible to appear for the university examinations in their first attempt. A candidate lacking in prescribed percentage of attendance in any subjects either in theory or practical in the first appearance will not be eligible to appear for the University Examination in that subject. The discretionary power of condonation of shortage of attendance to appear for University Examination rests with the University.

#### ✦ CONDONATION :

Not with standing anything contrary contained in any provision of these statutes where any candidate falls short of attendance in any year it may be condoned after sufficient cause is shown by him/her in writing in this regard :

- a) By the Head of the Department / Principal of the College up to maximum of 5% of the total lectures delivered in all the papers. In addition to this a maximum of 5% of the total lectures delivered may also be condoned by the Vice-Chancellor.





Provided that no condition in shortage shall be permitted by the Vice-Chancellor unless endorsed and recommended by the Head of the Department / Principal of the College.

#### ✦ PARTICIPATION IN SPORTS EVENTS :

- i. Not with standing anything contrary contained in these statutes, where a candidate participates in any one or more of the activities as specified in the University statutes, he/she may be treated as present on all working days not exceeding 30 days in one academic year.
- ii. The Candidate participating in such event must produce a copy of certificate to the Head of the Department / Principal of the College within seven days from the end of the event, failing which no such benefit shall be given.
- iii. The authority competent to issue the candidate participation certificate shall bring to the notice of the Head of the Department, name, roll no. of the candidate and the date(s) on which the activities were conducted within a week's period from the end of the event.

#### I. INTERNAL ASSESSMENT (IA)

Theory - 20 marks.

Practical - 10 marks. [Lab work- 06 marks and Record-04 marks ]

There shall be a minimum of two periodical tests preferably one in each term in theory and practical of each subject in an academic year. The average marks of the two tests will be calculated and reduced to 20. The marks of IA shall be communicated to the University at least 15 days before the commencement of the University examination. The University shall have access to

the records of such periodical tests.

The marks of the internal assessment must be displayed on the notice board of the respective colleges with in a fortnight from the date test is held.

If a candidate is absent for any one of the tests due to genuine and satisfactory reasons, such a candidate may be given a re-test within a fortnight.



\* There shall be no University Practical Examination in First year.

## J. CURRICULUM

### Subject and hours of teaching for Theory and Practicals

The number of hours of teaching theory and practical, subject wise in first year, second year and third year are shown in Table-I, Table-II and Table-III

Main and Subsidiary subjects are common in first year for all the courses in Allied Health Science.

The number of hours for teaching theory and practical for main subjects in first, Second and Third year are shown in Table-I, II and III.

**Table – I Distribution of Teaching Hours in First Year Subjects**

#### Main Subjects

S.No	Subject	Theory No. of Hours	Practical No. of Hours	Total No. of Hours.
1	Human Anatomy	70	20	90
2	Physiology	70	70	90
3	Biochemistry	70	20	90
4	Pathology – [Clinical Pathology, Hematology & Blood Banking	70	20	90
5	Microbiology	70	20	90
	Total	350	100	450

The classes in main and subsidiary subjects are to be held from Monday to Thursday. On Fridays and Saturdays students shall work in hospitals in the respective specialty or department chosen by them

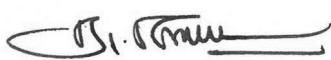
#### Subsidiary Subjects

English 25 Hours


Health-Care 40 Hours

Hospital posting – 470 Hours Fri day 9am - 1pm and 2pm - 4-30 pm  
Saturday 9am - 1pm











**Table – II Distribution of Teaching Hours in Second Year Subjects**

**Main Subjects**

S.No	Subject	Theory No. of Hours	Practical No. of Hours	Clinical posting	Total No. of Hours.
1	Medicine relevant to O.T. Technology	50			50
2	Section A Applied Pathology Section B Applied Microbiology	30 30	30 30		120
3	Introduction to Operation Theatre Technology	80	100	650	830
	<b>Total</b>	<b>240</b>	<b>160</b>	<b>650</b>	<b>1050</b>

**Subsidiary Subjects**

Sociology	20 Hours
Constitution of India	10 Hours
Environmental Science & Health	10 Hours

**Table – III Distribution of Teaching Hours in Third Year Subjects**

**Main Subjects**

S.No	Subject	Theory No. of Hours	Practical No. of Hours	Clinical posting	Total No. of Hours.
1	Operation Theatre Technology – Clinical	50	50	250	350
2	Operation Theatre Technology – Applied	50	50	250	350
3	Operation – Theatre Technology – Advanced	50	50	250	350
	<b>Total</b>	<b>150</b>	<b>150</b>	<b>750</b>	<b>1050</b>

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### **Subsidiary Subjects**

Ethics, Database Management	50 Hours
Research & Biostatistics	20 Hours
Computer application	10 Hours

\* There shall be no University Practical Examination in First year.

### **K SCHEME OF EXAMINATION**

There shall be three examinations, one each at the end of I, II and III year. The examination for both main and subsidiary subjects for all courses in Allied Health Sciences shall be common in the first year. Distribution of Subjects and marks for First Year, Second year & Third year University theory and practical Examinations are shown in the Table - IV, V & VI.

#### **First year examination:**

The University examination for 1st year shall consist of only theory examination and there shall be no University Practical Examination.

#### **Second & Third year examination:**

The University examination for 2nd and 3rd year shall consist of Written Examination & Practical.

#### **Written Examinations consists of :**

04 papers in the 2nd Year

02 papers in the 3rd Year.

#### **Practical examination:**

One combined practical examination, at the end 2<sup>nd</sup> Year and one combined practical examination at the end of the 3<sup>rd</sup> Year.





**Table – IV Distribution of Subjects and marks for First Year University theory Examination.**

A	Main Subject *	Written Paper		Internal Assessment	Total
		Duration	Marks	Theory (Marks)	Marks
1	Basic Anatomy [Including Histology]	3 Hours	80	20	100
2	Physiology	3 Hours	80	20	100
3	Biochemistry	3 Hours	80	20	100
4	Pathology	3 Hours	80	20	100
5	Microbiology	3 Hours	80	20	100
B	Subsidiary Subject **				Total
1	English	3 Hours	80	20	100
2	Health Care	3 Hours	80	20	100

Note \* IA = Internal Assessment

Main Subjects shall have University Examination.

\*\* Subsidiary subjects: Examination for subsidiary

Subjects shall be conducted by respective colleges.

**Table – V Distribution of Subjects and marks for Second Year Examination.**

Paper	Subjects	Theory			IA	Sub Total	Practicals			Grand Total
		Theory	Viva-Voca				Univ Practicals	IA	Sub total	
1	Section A – Applied Pathology Section B – Applied Microbiology	50 50	30		20	150	40	10	50	200
2	Introduction to Operation Technology	100	30		20	150	40	10	50	200
3	Applied Pharmacology	80			20	100	No Practicals			100
4	Medicine relevant to O.T. Technology	80			20	100	No. Practicals			100

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**Distribution of Subsidiary Subjects and marks for Second Year Examination.**

B	Subsidiary Subject *	Written Paper		Internal Assessment	Total
		Duration	Marks	Theory (Marks)	Marks
1	Sociology	3 Hours	80	20	100
2	Constitution of India	3 Hours	80	20	100
3	Environmental Science & Health	3 Hours	80	20	100

\*\* Subsidiary subjects: Examination for subsidiary Subjects shall be conducted by respective colleges.

**Table – VI Distribution of Subjects and marks for Third Year Examination.**

Paper	Subjects	Theory			IA	Sub Total	Practicals			Grand Total
		Theory	Viva-Voca				Univ Practicals	IA	Sub total	
1	Operation Technology – Clinical	100	30		20	150	40	10	150	200
2	Operation Technology – Applied	100	30		20	150	40	10	150	200
3	Operation Technology – Advanced	100	30		20	150	40	10	150	200
	<b>Total</b>						<b>120</b>	<b>30</b>	<b>450</b>	<b>600</b>

**Distribution of Subsidiary Subjects and marks for Third Year Examination.**

B	Subsidiary Subject *	Written Paper		Internal Assessment	Total
		Duration	Marks	Theory (Marks)	Marks
1	Ethics, Database Management	3 Hours	80	20	100
2	Research & Biostatistics	3 Hours	80	20	100
3	Computer Application	3 Hours	80	20	100

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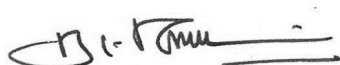
## L BOARD OF EXAMINERS FOR PRACTICALS :

- i. Subject to the provisions of these statutes and regulations made thereunder, there shall be a Board of Examiners to conduct viva- voce at the end of every year to evaluate the understanding and comprehension of a candidate in subject(s) taught during that year.
- ii. The Board of examiners shall consist of
  - a. Dean of the Faculty or his/her nominee.
  - b. Head of the Department / Principal of the College.
  - c. External Examiners(s)
- iii. The external examiner shall be chosen out of the panel recommended by the Head of the Department / Principal of the College and approved by the Vice-Chancellor.
- iv. The quorum for the conduct of examination by the Board of Examiners shall be at least 2 including External Examiners.

## M APPOINTMENT AND ELIGIBILITY OF EXAMINERS:

No person shall be appointed as an examiner in any of the subjects of the professional examinations leading to the award of the degree unless :

- a) He / She has at least five years teaching experience in the subject concerned in a College affiliated to a recognized University as a Faculty member.
- b) If of the rank of an Associate Professor or equivalent and above, with the requisite qualification and experience as given in above sub - clause
  - a. Provided that when an Associate Professor or equivalent and above are not available, an Assistant Professor of 5 Years standing as an Assistant Professor with requisite Qualification and Experience in the subject may be appointed as examiner.
- c) There shall be at least four examiners for upto 100 Students, out of whom not less than 50% must be external examiners. Of the four examiners, the senior - most internal examiner will act as the Chairman and Co-Coordinator of the whole examination programme so that uniformity in the matter of assessment of candidate is maintained. Where candidates appearing are more than 100, two additional

  
B. C. Kumar



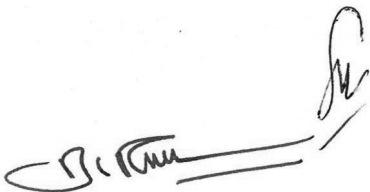






examiners (One external and one Internal) for every additional 50 or part thereof appearing, appointed. However, for students upto 50 there shall be two examiners one external and one internal.

- d) Notwithstanding the number of candidates registered for the examination, one external examiner and one internal examiner who shall be the senior of the two internal examiners, in case of more than 100 students, will set and assess one question paper each (Where there are two papers in a subject) or one part of a question paper (where there is only one question paper in the subject). Senior most internal examiner of affiliated College shall be Chairman of the board of paper setters and act as moderator by rotation for one year.
- e) The external examiner shall ordinarily be an in-service teacher in the subject or an allied subject from any college affiliated to a recognized University (Other than Jammu University) Post Graduate Institute.
- f) External examiners (s) shall rotate after two years.
- g) In the case of non-availability of an examiner in a subject, a retired teacher with requisite qualification and teaching experience may be appointed either as external or internal examiner within seven years of super annuation.
- h) The Practical / Clinical and oral examination in each subject shall be conducted jointly by the external and internal examiner(s) and the award sheet containing the marks of practical and / or clinical (including the internal assessment) shall be compiled and signed by all the external and internal examiner(s) before it is submitted to the University by the senior-most internal examiner of each affiliated college.
- i) Award sheet containing marks of theory along with duly evaluated and signed answer scripts shall be submitted to the University separately by each examiner.
- j) External examiner(s) shall rotate after two years.
- k) External examiners shall not be from the same University.
- l) Interpretation, if any shall be determined by the Vice-Chancellor in consultation with the Dean, Faculty of Medical Sciences and the decision taken shall be final and binding on all concerned.

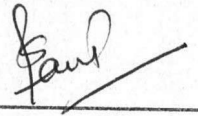




## Members of Board of Studies

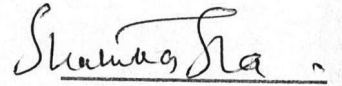
Dr Sunanda Raina

Convener



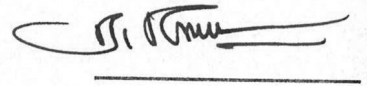
Smt. Shakuntla Sharma

Member



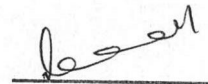
Mr. J.C. Frank

Member



Smt Munni Dhar

Member



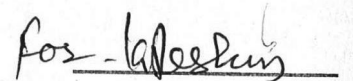
Smt. Sonam Sharma

Member



Smt. Rafiq Bashir

Member



Smt. Rajni Sharma

Member



# B.SC OPERATION THEATRE TECHNOLOGY

## COURSE CODE FOR B.SC OPERATION THEATRE TECHNOLOGY COURSE

YEAR	COURSE TITLE	COURSE CODE
FIRST YEAR	Human Anatomy	BOTT101
	Physiology	BOTT102
	Biochemistry	BOTT103
	Pathology – [Clinical Pathology, Hematology & Blood Banking	BOTT104
	Microbiology	BOTT105
	English	BOTT106
	Health Care	BOTT107
SECOND YEAR	Medicine relevant to O.T. Technology	BOTT201
	Section A Applied Pathology Section B Applied Microbiology	BOTT202
	Introduction to Operation Theatre Technology	BOTT203
	Sociology	BOTT204
	Constitution of India	BOTT205
	Environmental Science & Health	BOTT206
THIRD YEAR	Operation Theatre Technology – Clinical	BOTT301
	Operation Theatre Technology – Applied	BOTT302
	Operation – Theatre Technology – Advanced	BOTT303
	Research & Biostatistics	BOTT304
	Computer Application	BOTT305
	Ethics, Database Management	BOTT306

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First Year Annual Examination to be held in the year 2022, 2023,  
2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Human Anatomy

COURSE CODE: BOTT101

DURATION OF EXAMINATION: 3 HOURS

Course Contents Second Year

Main Subjects

## ANATOMY

No. of theory classes: 70 hours

No. of practical classes: 20 hours

### Introduction: human body as a whole

#### Theory:

Definition of anatomy and its divisions

Terms of location, positions and planes

Cell and its organelles

Epithelium- definition, classification, describe with examples, function

Glands- classification, describe serous & mucous glands with examples

Basic tissues - classification with examples

Practical: Histology of types of epithelium

Histology of serous, mucous & mixed salivary gland

### Locomotion and support

#### Theory:

Cartilage - types with example & histology

Bone - Classification, names of bone cells, parts of long bone, microscopy of compact bone, names of all bones, vertebral column, intervertebral disc, fontanelles of fetal skull

Joints - Classification of joints with examples, synovial joint (in detail for radiology)

Muscular system: Classification of muscular tissue & histology

Names of muscles of the body

Practical: Histology of the 3 types of cartilage

Demo of all bones showing parts, radiographs of normal bones & joints

Histology of compact bone (TS & LS)

Demonstration of all muscles of the body

Histology of skeletal (TS & LS), smooth & cardiac muscle

### 3. Cardiovascular system

#### Theory:

Heart-size, location, chambers, exterior & interior

Blood supply of heart

Systemic & pulmonary circulation

Branches of aorta, common carotid artery, subclavian artery, axillary artery, brachial artery,

superficial palmar arch, femoral artery, internal iliac artery

Peripheral pulse



**First Year Annual Examination to be held in the year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year**

**COURSE TITLE: Human Anatomy**

**COURSE CODE: BOTT101**

**DURATION OF EXAMINATION: 3 HOURS**

Inferior venacava, portal vein, portosystemic anastomosis  
Great saphenous vein  
Dural venous sinuses  
Lymphatic system- cisterna chyli & thoracic duct  
Histology of lymphatic tissues  
Names of regional lymphatics, axillary and inguinal lymph nodes in brief  
Practical: Demonstration of heart and vessels in the body  
Histology of large artery, medium sized artery & vein, large vein  
Microscopic appearance of large artery, medium sized artery & vein, large vein pericardium  
Histology of lymph node, spleen, tonsil & thymus  
Normal chest radiograph showing heart shadows  
Normal angiograms

#### **4. Gastro-intestinal system**

**Theory:**

Parts of GIT, Oral cavity (lip, tongue (with histology), tonsil, dentition, pharynx, salivary glands, Waldeyer's ring)  
Oesophagus, stomach, small and large intestine, liver, gall bladder, pancreas  
Radiographs of abdomen

#### **5. Respiratory system**

Parts of RS, nose, nasal cavity, larynx, trachea, lungs, bronchopulmonary segments  
Histology of trachea, lung and pleura  
Names of paranasal air sinuses  
Practical: Demonstration of parts of respiratory system.  
Normal radiographs of chest  
Histology of lung and trachea

#### **6. Peritoneum**

Theory: Description in brief  
Practical: Demonstration of reflections

#### **7. Urinary system**

Kidney, ureter, urinary bladder, male and female urethra  
Histology of kidney, ureter and urinary bladder  
Practical: demonstration of parts of urinary system  
Histology of kidney, ureter, urinary bladder  
Radiographs of abdomen-IVP, retrograde cystogram

#### **8. Reproductive system**

**Theory:**

Parts of male reproductive system, testis, vas deferens, epididymis, prostate (gross & histology)  
Parts of female reproductive system, uterus, fallopian tubes, ovary (gross & histology)  
Mammary gland - gross  
Practical: demonstration of section of male and female pelvis with organs in situ  
Histology of testis, vas deferens, epididymis, prostate, uterus, fallopian tubes, ovary

First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Human Anatomy

COURSE CODE: BOTT101

DURATION OF EXAMINATION: 3 HOURS

Radiographs of pelvis - hysterosalpingogram

### 9. Endocrine glands

#### Theory:

Names of all endocrine glands in detail on pituitary gland, thyroid gland, parathyroid gland, suprarenal gland - (gross & histology)

Practical: Demonstration of the glands

Histology of pituitary, thyroid, parathyroid, suprarenal glands

### 10. Nervous system

#### Theory:

Neuron

Classification of NS

Cerebrum, cerebellum, midbrain, pons, medulla oblongata, spinal cord with spinal nerve (gross & histology)

Meninges, Ventricles & cerebrospinal fluid

Names of basal nuclei

Blood supply of brain

Cranial nerves

Sympathetic trunk & names of parasympathetic ganglia

Practical: Histology of peripheral nerve & optic nerve

Demonstration of all plexuses and nerves in the body

Demonstration of all part of brain

Histology of cerebrum, cerebellum, spinal cord

### Sensory organs:

#### Theory:

Skin: Skin-histology

Appendages of skin

Eye: parts of eye & lacrimal apparatus

Extra-ocular muscles & nerve supply

Ear: parts of ear- external, middle and inner ear and contents

Practical: Histology of thin and thick skin

Demonstration and histology of eyeball

Histology of cornea & retina

### Embryology

#### Theory:

Spermatogenesis & oogenesis

Ovulation, fertilization

Fetal circulation

Placenta

### Internal Assessment

Theory - Average of two exams conducted.

20

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First Year Annual Examination to be held in the year 2022,  
2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Physiology

COURSE CODE: BOTT102

DURATION OF EXAMINATION: 3 HOURS

## PHYSIOLOGY

Theory 70 hours

Practical 20 hours

### **Introduction** - composition and function of blood

Red blood cells - Erythropoiesis , stages of differentiation function , count physiological Variation.

Haemoglobin -structure , functions , concentration physiological variation

Methods of Estimation of Hb

White blood cells - Production , function, life span, count, differential count

Platelets - Origin, normal count, morphology functions.

Plasma Proteins - Production, concentration , types, albumin, globulin, Fibrinogen, Prothrombin functions.

Haemostasis & Blood coagulation

Haemostasis - Definition, normal haemostasis, clotting factors, mechanism of clotting, disorders of clotting factors.

Blood Bank

Blood groups - ABO system, Rh system

Blood grouping & typing

Crossmatching

Rh system - Rh factor, Rh in compatibility.

Blood transfusion - Indication, universal donor and recipient concept.

Selection criteria of a blood donor. transfusion reactions Anticoagulants - Classification, examples and uses

Anaemias : Classification - morphological and etiological. effects of anemia on body

Blood indices - Colour index , MCH, MCV, MCHC

Erythrocyte sedimentation Rate (ESR) and Packed cell volume

Normal values, Definition . determination,

Blood Volume -Normal value ,determination of blood volume and regulation of blood volume

Body fluid - pH, normal value, regulation and variation

Lymph - lymphoid tissue formation, circulation, composition and function of lymph

### **Cardiovascular system**

Heart - Physiological Anatomy, Nerve supply

Properties of Cardiac muscle,

Cardiac cycle-systole, diastole. Intraventricular pressure curves.

Cardiac Output - only definition

Heart sounds Normal heart sounds Areas of auscultation.

Blood Pressure - Definition, normal value, clinical measurement of blood pressure.

Physiological variations, regulation of heart rate, cardiac shock, hypotension, hypertension.

Pulse - Jugular, radial pulse, Triple response

Heart sounds - Normal heart sounds, cause characteristics and signification. Heart rate

Electrocardiogram (ECG) -significance.

Digestive System-Physiological anatomy of Gastro intestinal tract, Functions of digestive system



First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year

COURSE TITLE: Physiology

COURSE CODE: BOTT102

DURATION OF EXAMINATION: 3 HOURS

Salivary glands Structure and functions. Deglutination -stages and regulation

Stomach - structure and functions

Gastric secretion - Composition function regulation of gastric juice secretion

Pancreas - structure, function, composition, regulation of pancreatic juice

Liver - functions of liver

Bile secretion, composition, function regulation of bile secretion .Bilirubin metabolism types of bilirubin, Vanderberg reaction, Jaundice- types, significance.

Gall bladder - functions

Intestine - small intestine and large intestine

Small intestine -Functions- Digestive, absorption ,movements.

Large intestine - Functions, Digestion and absorption of Carbohydrates, Proteins,

Fats, Lipids. Defecation

Respiratory system

Functions of Respiratory system, Physiological Anatomy of Respiratory system, Respiratory tract, Respiratory Muscles, Respiratory organ-lungs, Alveoli, Respiratory membrane, stages of respiration.

Mechanism of normal and rigorous respiration. Forces opposing and favouring expansion of the lungs. Intra pulmonary pleural pressure, surface tension, recoil tendency of the wall. H  
Transportation of Respiratory gases :

Transportation of Oxygen : Direction, pressure gradient, Forms of transportation, Oxygenation of Hb. Quantity of Oxygen transported.

### **Lung volumes and capacities**

Regulation of respiration what? Why? How? Mechanisms of Regulation, nervous and chemical regulation. Respiratory centre. Hearing Brier, Reflexes.

Applied Physiology and Respiration : Hypoxia, Cyanosis, Asphyxia, Dyspnea, Dysbarism, Artificial Respiration, Apnoea.

Endocrine System - Definition Classification of Endocrine glands & their Hormones Properties of Hormones .

Thyroid gland hormone - Physiological, Anatomy, Hormone secreted, Physiological function, regulation of secretion. Disorders - hypo and hyper secretion of hormone

Adrenal gland, Adrenal cortex physiologic anatomy of adrenal gland, Adrenal cortex, cortical hormones - functions and regulation

Adrenal medulla - Hormones , regulation and secretion. Functions of Adrenaline and nor adrenaline

Pituitary hormones - Anterior and posterior pituitary hormones, secretion ,function

Pancreas - Hormones of pancreas

Insulin - secretion, regulation ,function and action

Diabetes mellitus - Regulation of blood glucose level

Parathyroid gland - function, action ,regulation of secretion of parathyroid hormone.

Calcitonin - function and action

Special senses

Vision - structure of eye. Function of different parts.

Structure of retina

**First Year Annual Examination to be held in the year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year**

**COURSE TITLE: Physiology**

**COURSE CODE: BOTT102**

**DURATION OF EXAMINATION: 3 HOURS**

Hearing structure and function of ear mechanism of hearing

Taste - Taste buds functions . Smell physiology, Receptors.

Nervous system

Functions of Nervous system, Neurone structure, classification and properties. Neuroglia, nerve fiber, classification, conduction of impulses continuous and saltatory. Velocity of impulse transmission and factors affecting. Synapse - structure, types, properties.

Receptors - Definition, classification, properties. Reflex action - unconditioned properties of reflex action. Babinski's sign. Spinal cord nerve tracts. Ascending tracts, Descending tracts -

pyramidal tracts - Extrapyramidal tracts. Functions of Medulla, pons, Hypothalamic disorders. Cerebral cortex lobes and functions, Sensory cortex, Motor cortex, Cerebellum functions of Cerebellum. Basal ganglion-functions. EEG.

Cerebro Spinal Fluid(CSF) : formation, circulation, properties, composition and functions lumbar puncture.

Autonomic Nervous System : Sympathetic and parasympathetic distribution and functions and comparison of functions.

Excretory System

Excretory organs

Kidneys: Functions of kidneys structural and functional unit nephron, vasarecta, cortical and juxtamedullary nephrons - Comparison, Juxta Glomerular Apparatus -Structure and function. Renal circulation peculiarities.

Mechanism of Urine formation : Ultrafiltration criteria for filtration GFR, Plasma fraction, EFR, factors effecting EFR. Determination of GFR selective reabsorption - sites of reabsorption, substance reabsorbed, mechanisms of reabsorption Glucose, urea.

H + Cl aminoacids etc. TMG, Tubular load, Renal threshold % of reabsorption of different substances, selective secretion.

Properties and composition of normal urine, urine output. Abnormal constituents in urine , Mechanism of urine concentration.

Counter - Current Mechanisms : Micturition, Innervation of Bladder, Cystourethrogram.

Diuretics : Water, Diuretics, osmotic diuretics, Artificial kidney Renal function tests - plasma clearance Actions of ADH, Aldosterone and PTH on kidneys. Renal function tests

Reproductive system

Function of Reproductive system, Puberty, male reproductive system. Functions of testes, spermatogenesis site, stages, factors influencing semen. Endocrine functions of testes

Androgens - Testosterone structure and functions. Female reproductive system. Ovulation, menstrual cycle. Physiological changes during pregnancy, pregnancy test. Lactation :

Composition of milk factors controlling lactation.

Muscle nerve physiology

Classification of muscle, structure of skeletal muscle, Sarcomere contractile proteins, Neuromuscular junction. Transmission across, Neuromuscular junction. Excitation contraction coupling. Mechanism of muscle contraction muscle tone, fatigue Rigour mortis

Skin -structure and function

Body temperature measurement, Physiological variation, Regulation of body Temperature by

First Year Annual Examination to be held in the year 2022, 2023, 2024  
CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year  
COURSE TITLE: Physiology  
COURSE CODE: BOTT102  
DURATION OF EXAMINATION: 3 HOURS

physical chemical and nervous mechanisms .Role of Hypothalamus, Hypothermia and fever.

### Practicals

Haemoglobinometry  
White Blood Cell count  
Red Blood Cell count  
Determination of Blood Groups  
Leishman's staining and Differential WBC count  
Determination of packed cell Volume  
Erythrocyte sedimentation rate [ESR]  
Calculation of Blood indices  
Determination of Clotting Time, Bleeding Time  
Blood pressure Recording  
Auscultation for Heart Sounds  
Artificial Respiration  
Determination of vital capacity

### Internal Assessment

Theory - Average of two exams conducted. 20  
Practicals: Record & Lab work\* 10

\* There shall be no University Practical Examination and internal assessment marks secured in Practical need not be sent to the University.

### Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Physiology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

# BIOCHEMISTRY

No. Theory classes : 70 hours  
No. of practical classes : 20 hours

First Year Annual Examination to be held in the year  
2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Biochemistry

COURSE CODE: BOTT103

DURATION OF EXAMINATION: 3 HOURS

## Theory:

**Specimen collection :** Pre-analytical variables  
Collection of blood  
Collection of CSF & other fluids  
Urine collection  
Use of preservatives  
Anticoagulants

Introduction to Laboratory apparatus

Pipettes- different types (Graduated, volumetric, Pasteur, Automatic etc.,)

Calibration of glass pipettes

Burettes, Beakers, Petri dishes, depression plates.

Flasks - different types (Volumetric, round bottomed, Erlenmeyer conical etc.,)

Funnels - different types (Conical, Buchner etc.,)

Bottles - Reagent bottles - graduated and common, Wash bottles - different type Specimen bottles etc.,

Measuring cylinders, Porcelain dish

Tubes - Test tubes, centrifuge tubes, test tube draining rack

Tripod stand, Wire gauze, Bunsen burner.

Cuvettes, significance of cuvettes in colorimeter, cuvettes for visible and UV range, cuvette holders Racks - Bottle, Test tube, Pipette

Dessicator, Stop watch, rimers, scissors

Dispensers - reagent and sample

Any other apparatus which is important and may have been missed should also be covered

Maintenance of lab glass ware and apparatus:

Glass and plastic ware in Laboratory

\*use of glass: significance of boro silicate glass ; care and cleaning of glass ware, different cleaning solutions of glass

\* care and cleaning of plastic ware, different cleaning solutions

## 3. Instruments (Theory and demonstration) Diagrams to be drawn

Water bath: Use, care and maintenance

Oven & Incubators : Use, care and maintenance.

Water Distillation plant and water deionisers. Use, care and maintenance

Refrigerators, cold box, deep freezers - Use, care and maintenance

Reflux condenser : Use, care and maintenance

Centrifuges (Theory and demonstration) Diagrams to be drawn

Definition, Principle, svedberg unit, centrifugal force, centrifugal field rpm, ref. Conversion of G

First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year

COURSE TITLE: Biochemistry

COURSE CODE: BOTT103

DURATION OF EXAMINATION: 3 HOURS

to rpm and vice versa.

Different types of centrifuges

Use care and maintenance of a centrifuge

Laboratory balances (Theory & Practicals) Diagrams to be drawn

Manual balances: Single pan, double pan, trip balance

Direct read out electrical balances.

Use care and maintenance. Guideline to be followed and precautions to be taken while weighing

Weighing different types of chemicals, liquids. Hygroscopic compounds etc.

Colorimeter and spectrophotometer (Theory and Practicals) Diagrams to be drawn

Principle, Parts Diagram.

Use, care and maintenance.

pH meter (Theory & practicals) Diagrams to be drawn

principle, parts, Types of electrodes, salt bridge solution.

Use, care and maintenance of Ph meter and electrodes

Guidelines to be followed and precautions to be taken while using pH meter

#### 4. Safety of measurements

#### 5. Conventional and SI units

#### 6. Atomic structure

Dalton's theory, Properties of electrons, protons, neutrons, and nucleus, Rutherford's model of atomic structure, Bohr's model of atomic structure, orbit and orbital, Quantum numbers, Heisenberg's uncertainty principle.

Electronic configuration - Aufbau principle, Pauli's exclusion principle, etc.,

Valency and bonds - different types of strong and weak bonds in detail with examples Theory & Practicals for all the following under this section Molecular weight, equivalent weight of elements and compounds, normality molarity Preparation of molar solutions (mole/litre solution) eg: 1 M NaCl, 0.15 M NaCl 1 M NaOH, 0.1 M HCl, 0.1 M H<sub>2</sub>SO<sub>4</sub> etc.,

preparation of normal solutions. eg., 1N Na<sub>2</sub>CO<sub>3</sub>, 0.1N Oxalic acid, 0.1 N HCl, 0.1N H<sub>2</sub>SO<sub>4</sub>, 0.66N H<sub>2</sub>SO<sub>4</sub> etc.,

Percent solutions. Preparation of different solutions - v/v w/v (solids, liquids and acids)

Conversion of a percent solution into a molar solution

Dilutions

Diluting solutions: eg. Preparation of 0.1 N NaCl from 1 N NaCl from 2 N HCl etc., Preparing working standard from stock standard, Body fluid dilutions, Reagent dilution techniques, calculating the dilution of a solution, body fluid reagent etc.,

Saturated and supersaturated solutions.

Standard solutions. Technique for preparation of standard solutions eg: Glucose, urea, etc.,



First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Biochemistry

COURSE CODE: BOTT103

DURATION OF EXAMINATION: 3 HOURS

Significance of volumetric flask in preparing standard solutions. Volumetric flasks of different sizes, Preparation of standard solutions of deliquescent compounds (CaCl<sub>2</sub>, potassium carbonate, sodium hydroxide etc.,)

Preparation of standards using conventional and SI units

Acids, bases, salts and indicators.

Acids and Bases: Definition, physical and chemical properties with examples.

Arrhenius concept of acids and bases, Lowry - Bronsted theory of acids and bases classification of acids and bases. Different between bases and alkali, acidity and basicity, monoprotic and polyprotic acids and bases

Concepts of acid base reaction, hydrogen ion concentration, ionisation of water, buffer, Ph value of a solution, preparation of buffer solutions using Ph meter.

Salts: Definition, classification, water of crystallization - definition and different types, deliquescent and hygroscopic salts

Acid- base indicators: (Theory and Practicals)

Theory - Definition, concept, mechanism of dissociation of an indicator, colour change of an indicator in acidic and basic conditions, use of standard buffer solution and indicators for Ph determinations, preparation and its application, list of commonly used indicators and their Ph range, suitable pH indicators used in different titrations, universal indicators

Practicals - Titration of a simple acid and a base (Preparation of standard solution of oxalic acid and using this solution finding out the normality of a sodium hydroxide solution. Acid to be titrated using this base) Calculation of normality of an acid or a base after titration, measurement of hydrogen ion concentration

**Quality control :**

Accuracy  
Precision  
Specificity  
Sensitivity  
Limits of error allowable in laboratory  
Percentage error

Normal values and Interpretations

**Special Investigations :**

Serum Electrophoresis  
Immunoglobulins  
Drugs : Digitoxin, Theophyllines

**Regulation of Acid Base status:**

Henderson Hasselback Equations  
Buffers of the fluid

pH Regulation

Disturbance in acid Base Balance

Anion Gap

Metabolic acidosis

Metabolic acidosis

Metabolic alkalosis

Respiratory acidosis

**First Year Annual Examination to be held in the year 2022, 2023, 2024**  
**CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year**  
**COURSE TITLE: Biochemistry**  
**COURSE CODE: BOTT103**  
**DURATION OF EXAMINATION: 3 HOURS**

Respiratory alkalosis  
Basic Principles and estimation of Blood Gases and pH  
Basic principles and estimation of Electrolytes  
Water Balance  
Sodium regulation  
Bicarbonate buffers  
Nutrition, Nutritional support with special emphasis on parental nutrition.  
Calorific Value  
Nitrogen Balance  
Respiratory Quotient  
Basal metabolic rate  
Dietary Fibers  
Nutritional importance of lipids, carbohydrates and proteins  
Vitamins

#### **PRACTICALS**

Analysis of Normal Urine  
Composition of urine  
Procedure for routine screening  
Urinary screening for inborn errors of metabolism  
Common renal disease  
Urinary calculus

Urine examination for detection of abnormal constituents  
Interpretation and Diagnosis through charts  
Liver Function tests  
Lipid Profile  
Renal Function test  
Cardiac markers  
Blood gas and Electrolytes

#### **4. Estimation of Blood sugar, Blood Urea and electrolytes**

#### **5. Demonstration of Strips**

Demonstration of Glucometer

#### **Internal Assessment**

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

\* There shall be no University Practical Examination and internal assessment marks secured in Practical need not be sent to the University.

First Year Annual Examination to be held in the year 2022, 2023, 2024  
CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year  
COURSE TITLE: Biochemistry  
COURSE CODE: BOTT103  
DURATION OF EXAMINATION: 3 HOURS

### **Scheme of Examination Theory**

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Biochemistry shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

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THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
5800 S. UNIVERSITY AVENUE  
CHICAGO, ILLINOIS 60637  
TEL: 773-936-3700  
WWW.CHEM.UCHICAGO.EDU

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First Year Annual Examination to be held in the year 2022,  
2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Pathology (Clinical, Haematology & Blood)

COURSE CODE: BOTT104

DURATION OF EXAMINATION: 3 HOURS

## **PATHOLOGY**

Histo Pathology ,Clinical Pathology, Haematology and Blood Banking

Theory - 70 hours

Practical - 20 hours

### **HistoPathology - Theory**

- Introduction to Histo Pathology
- Receiving of Specimen in the laboratory
- Grossing Techniques
- Mounting Techniques - various Mountants
- Maintenance of records and filing of the slides.
- Use & care of Microscope
- Various Fixatives, Mode of action, Preparation and Indication.
- Bio-Medical waste management
- Section Cutting
- Tissue processing for routine paraffin sections
- Decalcification of Tissues.
- Staining of tissues - H& E Staining
- Bio-Medical waste management

### **Clinical Pathology - Theory**

- Introduction to Clinical Pathology
- Collection, Transport, Preservation, and Processing of various clinical specimens
- Urine Examination - Collection and Preservation of urine.  
Physical, chemical, Microscopic Examination
- Examination of body fluids.
- Examination of cerebro spinal fluid (CSF)
- Sputum Examination.
- Examination of feces

### **Haematology - Theory**

- Introduction to Haematology
- Normal constituents of Blood, their structure and function.
- Collection of Blood samples



**First Year Annual Examination to be held in the year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year**

**COURSE TITLE: Pathology (Clinical, Haematology & Blood)**

**COURSE CODE: BOTT104**

**DURATION OF EXAMINATION: 3 HOURS**

- Various Anticoagulants used in Haematology
- Various instruments and glassware used in Haematology, Preparation and use of glassware
- Laboratory safety guidelines
- SI units and conventional units in Hospital Laboratory
- Hb, PCV
- ESR
- Normal Haemostasis  
Bleeding Time, Clotting Time, Prothrombin Time, Activated Partial Thromboplastin Time.
- Blood Bank  
Introduction  
Blood grouping and Rh Types  
Cross matching

### **PRACTICALS**

- Urine Examination.
- Physical
- Chemical
- Microscopic
- Blood Grouping Rh typing.
- Hb Estimation, Packed Cell Volume [PCV], Erythrocyte Sedimentation rate {ESR}
- Bleeding Time, Clotting Time.
- Histopathology - Section cutting and H & E Staining. [For BSc MLT only]

### **Internal Assessment**

Theory - Average of two exams conducted.	20
Practicals: Record & Lab work*	10

\* There shall be no University Practical Examination and internal assessment marks secured in Practical need not be sent to the University.

### **Scheme of Examination Theory**

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Pathology shall be as given under.

First Year Annual Examination to be held in the year 2022, 2023, 2024

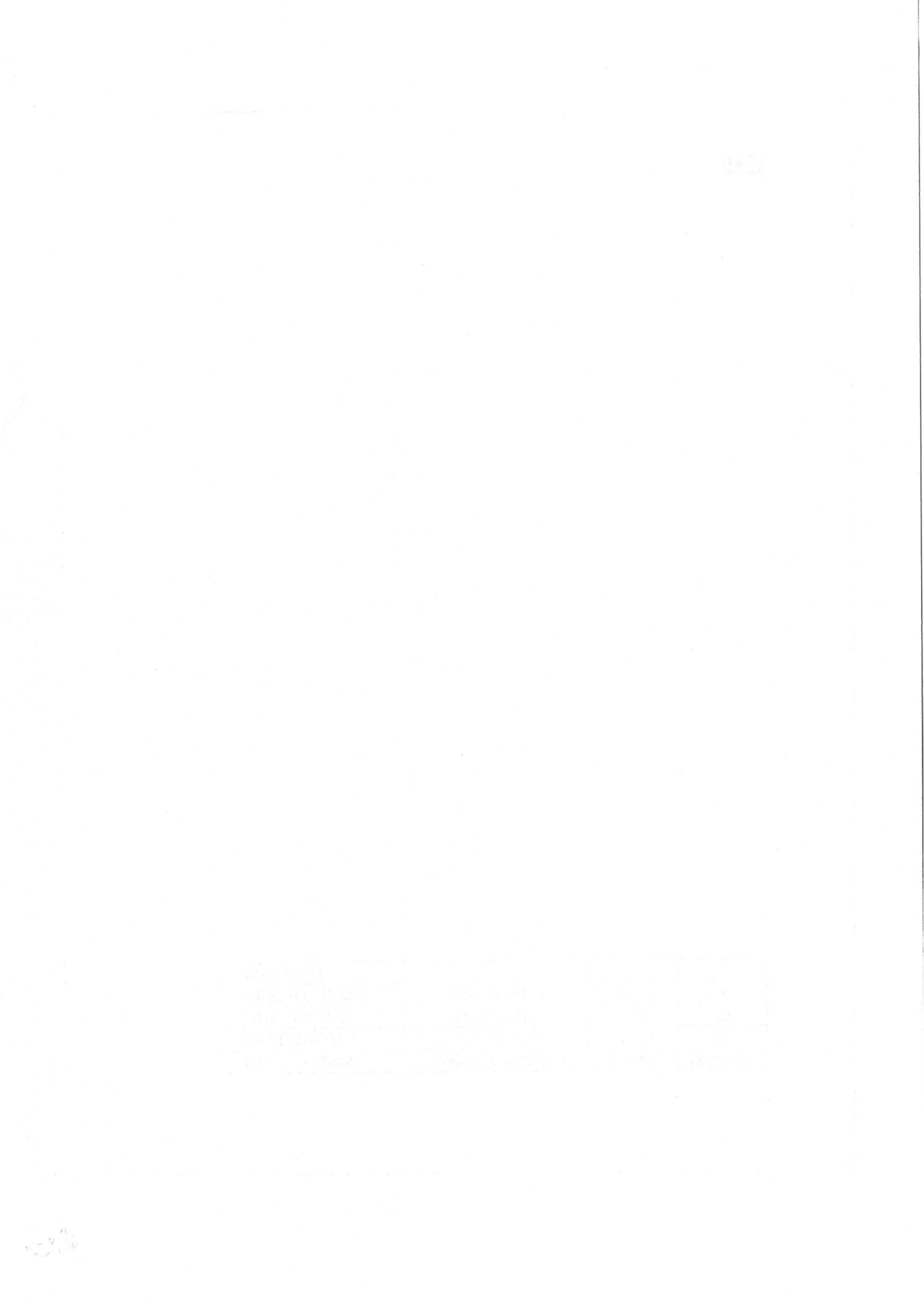
CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year

COURSE TITLE: Pathology (Clinical, Haematology & Blood)

COURSE CODE: BOTT104

DURATION OF EXAMINATION: 3 HOURS

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80



# MICROBIOLOGY

First Year Annual Examination to be held in the year  
2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Microbiology

COURSE CODE: BOTT105

DURATION OF EXAMINATION: 3 HOURS

## Objective :

This course introduces the principles of Microbiology with emphasis on applied aspects of Microbiology of infectious diseases particularly in the following areas

Principles & practice of sterilization methods.

Collection and despatch of specimens for routine microbiological investigations.

Interpretation of commonly done bacteriological and serological investigations.

Control of Hospital infections

Biomedical waste management

Immunization schedule

## Theory - 70 hours

1. Morphology 4 hours  
Classification of microorganisms, size, shape and structure of bacteria. Use of microscope in the study of bacteria.
2. Growth and nutrition 4 hours  
Nutrition, growth and multiplications of bacteria, use of culture media in diagnostic bacteriology.
3. Sterilisation and Disinfection 4 hours  
Principles and use of equipments of sterilization namely Hot Air oven, Autoclave and serum inspissator. Pasteurization, Anti septic and disinfectants. Antimicrobial sensitivity test
4. Immunology 6 hours  
Immunity Vaccines, Types of Vaccine and immunization schedule Principles and interpretation of commonly done serological tests namely Widal, VDRL, ASLO, CRP, RF & ELISA. Rapid tests for HIV and HbsAg(Technical details to be avoided)
5. Systematic Bacteriology 20 hours  
Morphology, cultivation, diseases caused, laboratory diagnosis including specimen collection of the following bacteria( the classification, antigenic structure and pathogenicity are not to be taught) Staphylococci, Streptococci, Pneumococci, Gonococci, Meningococci, C diphtheriae, Mycobacteria, Clostridia, Bacillus, Shigella, Salmonella, Esch coli, Klebsiella, Proteus, vibrio cholerae, Pseudomonas & Spirochetes
6. Parasitology 10 hours  
Morphology, life cycle, laboratory diagnosis of following parasites E. histolytica, Plasmodium, Tape worms, Intestinal nematodes

First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year

COURSE TITLE: Microbiology

COURSE CODE: BOTT105

DURATION OF EXAMINATION: 3 HOURS

- |  |          |
|--|----------|
| 7. Mycology  | 4 hours  |
| Morphology, diseases caused and lab diagnosis of following fungi. Candida, Cryptococcus, Dermatophytes, opportunistic fungi.                         |          |
| 8. Virology  | 10 hours |
| General properties of viruses, diseases caused, lab diagnosis and prevention of following viruses, Herpes, Hepatitis, HIV, Rabies and Poliomyelitis. |          |
| 9. Hospital infection  | 4 hours  |
| Causative agents, transmission methods, investigation, prevention and control<br>Hospital infection.   |          |
| 10. Principles and practice  | 4 hours  |
| Biomedical waste management  |          |

### **Practical**

**20 hours**

Compound Microscope.

Demonstration and sterilization of equipments - Hot Air oven, Autoclave, Bacterial filters.

Demonstration of commonly used culture media, Nutrient broth, Nutrient agar, Blood agar, Chocolate agar, Mac conkey medium, LJ media, Robertson Cooked meat media, Potassium tellurite media with growth, Mac with LF & NLF, NA with staph

Antibiotic susceptibility test

Demonstration of common serological tests - Widal, VRDL, ELISA.

Grams stain

Acid Fast staining

Stool exam for Helminthic ova

Visit to hospital for demonstration of Biomedical waste mangement.

Anaerobic culture methods.

### **Internal Assessment**

Theory - Average of two exams conducted. 20

Practicals: Record & Lab work\* 10

\* There shall be no University Practical Examination and internal assessment marks secured in Practical need not be sent to the University.



First Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Microbiology

COURSE CODE: BOTT105

DURATION OF EXAMINATION: 3 HOURS

### **Scheme of Examination Theory**

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Microbiology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

1910

Year	Population	Area
1900	1,000,000	100,000
1910	1,500,000	150,000
1920	2,000,000	200,000
1930	2,500,000	250,000
1940	3,000,000	300,000
1950	3,500,000	350,000
1960	4,000,000	400,000
1970	4,500,000	450,000
1980	5,000,000	500,000
1990	5,500,000	550,000
2000	6,000,000	600,000
2010	6,500,000	650,000
2020	7,000,000	700,000

**First Year Annual Examination to be held in the year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year**

**COURSE TITLE: English**

**COURSE CODE: BOTT106**

**DURATION OF EXAMINATION: 3 HOURS**

Subsidiary Subjects

## ENGLISH

### **COURSE OUTLINE**

**COURSE DESCRIPTION:** This course is designed to help the student acquire a good command and comprehension of the English language through individual papers and conferences.

### **BEHAVIOURAL OBJECTIVES :**

The student at the end of training is able to

1. Read and comprehend English language
2. Speak and write grammatically correct English
3. Appreciates the value of English literature in personal and professional life.

### **UNIT - I: INTRODUCTION :**

Study Techniques

Organisation of effective note taking and logical processes of analysis and synthesis Use of the dictionary

Enlargement of vocabulary

Effective diction

1st Year English Exam (1st Term) 2011/2012  
CLASS: 1st Year English (1st Term) 2011/2012  
DURATION OF EXAM: 1 Hour  
COURSE CODE: EN101  
DATE: 10/10/2011

Section A  
Answer any two questions

1. Discuss the role of the poet in society.  
2. Explain the significance of the title 'The Waste Land'.

3. Write a critical note on 'The Waste Land'.

4. Discuss the theme of 'The Waste Land'.

5. Write a critical note on 'The Waste Land'.

6. Discuss the theme of 'The Waste Land'.

Page 2

First Year Annual Examination to be held in the year 2022, 2023, 2024  
CLASS: B.Sc Operation Theatre Technology I<sup>st</sup> Year  
COURSE TITLE: English  
COURSE CODE: BOTT106  
DURATION OF EXAMINATION: 3 HOURS

**UNIT - II : APPLIED GRAMMAR :**

Correct usage  
The structure of sentences  
The structure of paragraphs  
Enlargements of Vocabulary

**UNIT - III : WRITTEN COMPOSITION :**

Precise writing and summarising  
Writing of bibliography  
Enlargement of Vocabulary

**UNIT - IV : READING AND COMPREHENSION :**

Review of selected materials and express oneself in one's words. Enlargement of Vocabulary.

**UNIT - V : THE STUDY OF THE VARIOUS FORMS OF COMPOSITION :**

Paragraph, Essay, Letter, Summary, Practice in writing

**UNIT - VI : VERBAL COMMUNICATION :**

Discussions and summarization, Debates, Oral reports, use in teaching

**Scheme of Examination**

Written (Theory): Maximum Marks: -80 marks.

No Practical or Viva voce examination

This is a subsidiary subject, examination to be conducted by respective colleges. Marks required for a pass is 35%



THE STATE OF TEXAS

COUNTY OF DALLAS

BEFORE ME, the undersigned authority, on this day personally appeared \_\_\_\_\_, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed.

Given under my hand and seal of office this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

Notary Public in and for the State of Texas

My commission expires this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

WITNESSED my hand and seal of office this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

Notary Public

My commission expires this \_\_\_\_\_ day of \_\_\_\_\_, 19\_\_\_\_.

# HEALTH CARE

First Year Annual Examination to be held in the year  
2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 1<sup>st</sup> Year

COURSE TITLE: Health Care

COURSE CODE: BOTT107

DURATION OF EXAMINATION: 3 HOURS

Teaching Hours : 40

## Introduction to Health

Definition of Health, Determinants of Health, Health Indicators of India, Health Team Concept.  
National Health Policy  
National Health Programmes ( Briefly Objectives and scope)  
Population of India and Family welfare programme in India

## Introduction to Nursing:

What is Nursing ? Nursing principles. Inter-Personnel relationships. Bandaging : Basic turns;  
Bandaging extremities; Triangular Bandages and their application.  
Nursing Position, Bed making, prone, lateral, dorsal, dorsal re-cumbent, Fowler's positions,  
comfort measures, Aids and rest and sleep.

Lifting And Transporting Patients: Lifting patients up in the bed. Transferring from bed to wheel  
chair. Transferring from bed to stretcher.

Bed Side Management: Giving and taking Bed pan, Urinal : Observation of stools, urine.  
Observation of sputum, Understand use and care of catheters, enema giving.

Methods of Giving Nourishment: Feeding, Tube feeding, drips, transfusion  
Care of Rubber Goods  
Recording of body temperature, respiration and pulse,  
Simple aseptic technique, sterilization and disinfection.  
Surgical Dressing: Observation of dressing procedures

## First Aid :

Syllabus as for Certificate Course of Red Cross Society of St. John's Ambulance Brigade.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is crucial for the company's financial health and for providing reliable information to stakeholders.

2. The second part of the document outlines the specific procedures for recording transactions. It details the steps from initial entry to final review and approval.

3. The third part of the document discusses the role of the accounting department in ensuring the accuracy and integrity of the financial records. It highlights the need for regular audits and the implementation of internal controls.

4. The fourth part of the document addresses the challenges faced by the accounting department in maintaining accurate records. It identifies common issues such as data entry errors and incomplete documentation.

5. The fifth part of the document provides recommendations for improving the accuracy and efficiency of the recording process. It suggests the use of technology and the implementation of standardized procedures.

6. The sixth part of the document discusses the importance of training and development for the accounting staff. It emphasizes the need for ongoing education and skill enhancement to stay current in the field.

7. The seventh part of the document concludes by reiterating the importance of accurate financial records for the company's success and the role of the accounting department in achieving this goal.

# MEDICINE RELEVANT TO OPERATION THEATRE TECHNOLOGY

Diabetes Mellitus  
Hypertension  
Ischaemic heart disease  
Obesity  
Elderly Patient  
Pregnancy  
Shock  
COPD  
Chronic renal failure  
Chronic liver disease/failure  
Anaemia  
Pediatric patient Infant/Neonate  
Epilepsy  
CVA

Second Year Annual Examination to be held in the  
year 2022, 2023, 2024

**CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year**

**COURSE TITLE: Medicine relevant to O.T. Technology**

**COURSE CODE: BOTT201**

**DURATION OF EXAMINATION: 3 HOURS**

## **Scheme of Examination Theory**

There shall be one theory paper of three hours duration carrying 80 marks. Distribution of type of questions and marks for Medicine relevant to Operation Theatre Technology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	8 (To attempt 6)	6 x 5	30
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			80

## **NO PRACTICAL EXAMINATION**

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
5800 S. UNIVERSITY AVENUE  
CHICAGO, ILLINOIS 60637  
TEL: 773-936-3700  
WWW.CHEM.UCHICAGO.EDU

CHICAGO, ILLINOIS

CHICAGO, ILLINOIS

Second Year Annual Examination to be held in the year 2022, 2023, 2024  
CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year  
COURSE TITLE: Section A and B Pathology, Microbiology  
COURSE CODE: BOTT202  
DURATION OF EXAMINATION: 3 HOURS

## APPLIED PATHOLOGY

### I. CARDIOVASCULAR SYSTEM

- Atherosclerosis- Definition, risk factors, briefly Pathogenesis & morphology, clinical significance and prevention.
- Hypertension- Definition, types and briefly Pathogenesis and effects of Hypertension.
- Aneurysms - Definition, classification, Pathology and complications.
- Pathophysiology of Heart failure.
- Cardiac hypertrophy - causes, Pathophysiology & Progression to Heart Failure.
- Ischaemic heart diseases- Definition, Types. Pathophysiology, in brief Pathology & Complications of various types of IHD.
- Valvular Heart diseases- causes, Pathology & complication. Complications of artificial valves.
- Cardiomyopathy - Definition, Types, causes and significance.
- Pericardial effusion- causes, effects and diagnosis.
- Congenital heart diseases - Basic defect and effects of important types of congenital heart diseases.

### II. HAEMATOLOGY

- Anaemia - Definition, morphological types and diagnosis of anaemia. Brief concept about Haemolytic anaemia and polycythaemia.
- Leukocyte disorders- Briefly leukaemia, leukocytosis, agranulocytosis etc.,
- Bleeding disorders- Definition, classification, causes & effects of important types of bleeding disorders. Briefly various laboratory tests used to diagnose bleeding disorders.

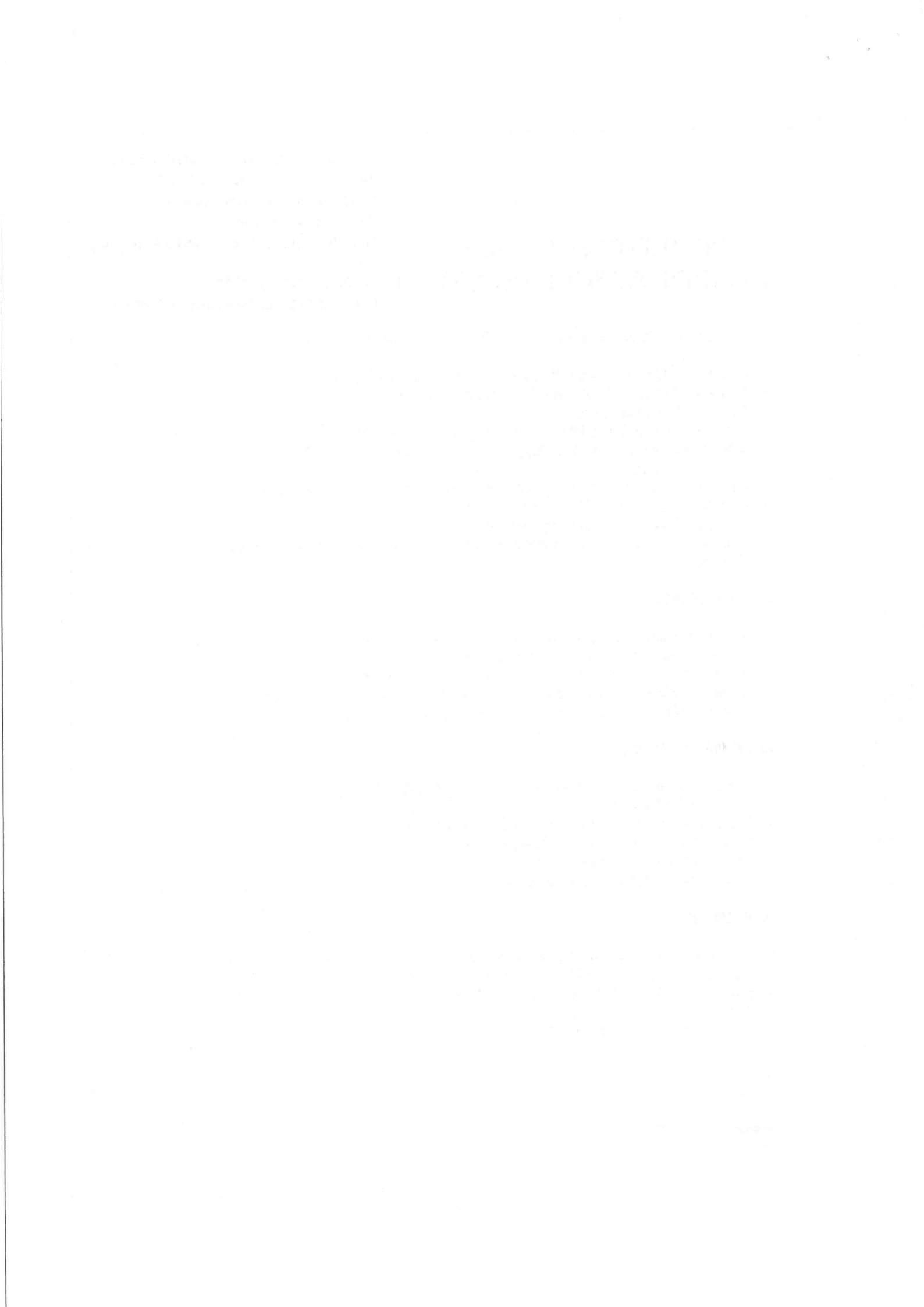
### III. RESPIRATORY SYSTEM

- Chronic obstructive airway diseases - Definition and types. causes, Pathology & complications of each type of COPD in brief.
- Briefly concept about obstructive versus restrictive pulmonary disease.
- Pneumoconiosis- Definition, types, Pathology and effects in brief.
- Pulmonary congestion and edema.
- Pleural effusion - causes, effects and diagnosis.

### IV. RENAL SYSTEM

- Clinical manifestations of renal diseases. Briefly the causes, mechanism, effects and laboratory diagnosis of ARF & CRF. Briefly Glomerulonephritis and Pyelonephritis.
- End stage renal disease - Definition, causes, effects and role of dialysis and renal transplantation in its management.
- Brief concept about obstructive uropathy.





**Second Year Annual Examination to be held in the year 2022, 2023, 2024**  
**CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year**  
**COURSE TITLE: Section A and B Pathology , Microbiology**  
**COURSE CODE: BOTT202**  
**DURATION OF EXAMINATION: 3 HOURS**

### **PRACTICALS**

1. Description & diagnosis of the following gross specimens.
  - a. Atherosclerosis.
  - b. Aortic aneurysm.
  - c. Myocardial infarction.
  - d. Emphysema
  - e. Chronic glomerulonephritis.
  - f. Chronic pyelonephritis.
2. Interpretation & diagnosis of the following charts.
  - a. Hematology Chart - AML, CML, Hemophilia, neutrophilia, eosinophilia.
  - b. Urine Chart - ARF, CRF, Acute glomerulonephritis.
3. Estimation of Hemoglobin.
4. Estimation Bleeding & Clotting time.

### **Scheme of Examination Theory**

There shall be one theory paper with 2 section of three hours duration carrying 50 marks. each Distribution of type of questions and marks for Applied Pathology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	5 (To attempt 3)	3 x 5	15
SHORT ANSWER (SA)	7 (To attempt 5)	5 x 3	15
TOTAL MARKS			50

### **PRACTICAL EXAMINATION - 40 Marks.**

There will be a Combined Practical examination for Applied Pathology & Applied Microbiology.

SL. NO.	TESTS	MARKS
01	Interpretation of Hematology Chart	05
02	Interpretation of Urine Chart	05
03	Estimation of Hemoglobin	05
04	Estimation of Bleeding time & Clotting time	05
	Total	20

1917

Received of the Treasurer of the  
Board of Education the sum of  
\$100.00 for the year ending  
June 30, 1917.

Witness my hand and seal of office  
this 1st day of July, 1917.

Superintendent of Schools

City of New York

By \_\_\_\_\_

1917

Received of the Treasurer of the  
Board of Education the sum of  
\$100.00 for the year ending  
June 30, 1917.

Witness my hand and seal of office  
this 1st day of July, 1917.

Superintendent of Schools

City of New York

By \_\_\_\_\_

Second Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year

COURSE TITLE: Section A and B Pathology, Microbiology

COURSE CODE: BOTT202

DURATION OF EXAMINATION: 3 HOURS

## APPLIED MICROBIOLOGY

### THEORY - 40 HOURS

1. Health care associated infections and Antimicrobial resistance: Infections that patients acquire during the course of receiving treatment for other conditions within a healthcare setting like Methicillin Resistant Staphylococcus aureus infections, Infections caused by Clostridium difficile, Vancomycin resistant enterococci etc. Catheter related blood stream infections, Ventilator associated pneumonia, Catheter Related urinary tract infections, Surveillance of emerging resistance and changing flora. The impact and cost attributed to Hospital Associated infection. 6 Hours
2. Disease communicable to Healthcare workers in hospital set up and its preventive measure: Occupationally acquired infections in healthcare professionals by respiratory route (tuberculosis, varicella-zoster, respiratory syncytial virus etc), blood borne transmission ( HIV, Hepatitis B, Hepatitis C, Cytomegalovirus, Ebola virus etc), oro faecal route ( Salmonella, Hepatitis A etc), direct contact ( Herpes Simplex Virus etc). Preventive measures to combat the spread of these infections by monitoring and control. 6 Hours
3. Microbiological surveillance and sampling: Required to determine the frequency of potential bacterial pathogens including Streptococcus pneumoniae, Haemophilus influenzae, and Moraxella catarrhalis and also to assess the antimicrobial resistance.  
Sampling: rinse technique, direct surface agar plating technique. 6 Hours
4. Importance of sterilization:
  - a. Disinfection of instruments used in patient care: Classification, different methods, advantages and disadvantages of the various methods.
  - b. Disinfection of the patient care unit
  - c. Infection control measures for ICU's 10 Hours
5. Sterilization:
  - a. Rooms: Gaseous sterilization, One Atmosphere Uniform Glow Discharge Plasma (OAUGDP).
  - b. Equipments: classification of the instruments and appropriate methods of sterilization.
  - c. Central supply sterile department: the four areas and the floor plan for instrument cleaning, high-level disinfecting and sterilizing areas. 8 Hours
6. Preparation of materials for autoclaving: Packing of different types of materials, loading, holding time and unloading. 4 Hours

### PRACTICALS- 30 HOURS

1. Principles of autoclaving & quality control of Sterilization.
2. Collection of specimen from outpatient units, inpatient units, minor operation theater and major operation theater for sterility testing.
3. The various methods employed for sterility testing.

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

PHYSICS 435: QUANTUM MECHANICS  
PROBLEM SET 10  
DUE DATE: NOVEMBER 15, 2011

1. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the momentum operator  $\hat{p}$ .

2. Consider a particle in a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the energy operator  $\hat{H}$ .

3. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the kinetic energy operator  $\hat{T}$ .

4. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the potential energy operator  $\hat{V}$ .

5. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the total energy operator  $\hat{E}$ .

6. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the momentum operator  $\hat{p}$ .

7. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the energy operator  $\hat{H}$ .

8. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the kinetic energy operator  $\hat{T}$ .

9. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the potential energy operator  $\hat{V}$ .

10. A particle of mass  $m$  is confined to a one-dimensional infinite potential well of width  $a$ . The wave function is given by  $\psi(x) = \sqrt{\frac{2}{a}} \sin\left(\frac{n\pi x}{a}\right)$  for  $0 < x < a$  and zero elsewhere. Calculate the expectation value of the total energy operator  $\hat{E}$ .

**Second Year Annual Examination to be held in the year 2022, 2023, 2024**  
**CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year**  
**COURSE TITLE: Section A and B Pathology , Microbiology**  
**COURSE CODE: BOTT202**  
**DURATION OF EXAMINATION: 3 HOURS**

4. Interpretation of results of sterility testing.
5. Disinfection of wards, OT and Laboratory.

### **Scheme of Examination**

#### **Theory**

There shall be one theory paper with 2 section of three hours duration carrying 50 marks. Distribution of type of questions and marks for Applied Microbiology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	5 (To attempt 3)	3 x 5	15
SHORT ANSWER (SA)	7 (To attempt 5)	5 x 3	15
TOTAL MARKS			50

#### **PRACTICAL EXAMINATION -**

**40 Marks.**

There will be a Combined Practical examination for Applied Pathology & Applied Microbiology.

Sl. No.	Tests	Marks
1.	Dry heat / Moist heat: Temperature recording charts interpretation	05
2.	Dry heat / Moist heat: Color change indicators interpretation	05
3.	Air sampling culture plates interpretation of Colony forming units based on air flow rate and sampling time	05
4.	Interpretation of Sterility of Hemodialysis water/Distilled water /Deionised water based on growth of colonies in BHI agar to be reported as X CFU/mL	05
	<b>Total</b>	<b>20</b>

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews with key personnel. Secondary data was obtained from existing reports and databases.

The third section details the results of the data analysis. It shows a clear trend of increasing activity over the period studied. The data indicates that the most significant changes occurred in the latter half of the year. These findings are supported by statistical analysis and visual representations of the data.

Finally, the document concludes with a series of recommendations based on the findings. It suggests that further research should be conducted to explore the underlying causes of the observed trends. Additionally, it recommends implementing specific measures to address any identified issues and to optimize the overall process.



Second Year Annual Examination to be held in the year 2022, 2023, 2024  
 CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year  
 COURSE TITLE: Introduction to Operation Theatre Tech.  
 COURSE CODE: BOTT203  
 DURATION OF EXAMINATION: 3 HOURS

## INTRODUCTION TO OPERATION THEATRE TECHNOLOGY

1. C.S.S.D, and logistics  
 Cleaning and dusting - methods of cleaning, composition of dust.  
 General care and testing of instruments- haemostatic forcaps , needle, holders, Knife, blade, scissor, use/abuse, care during surgery.  
  
 Disinfectants of instruments and Sterilization- Definition, Methods cleaning agents detergents, Mechanical washing, ultrasonic cleaner, lubrication inspection and pitfalls  
  
 Various methods of chemical treatment- formalin, glutaraldehyde etc, thermal. Hot Air oven- dry heat, Autoclaving, steam Sterilization water etc., UV treatment.  
  
 Instrument's Etching, care of micro surgical and titanium instruments  
  
 Sterilization of equipments - Arthroscope, Gastroscope, imago Lamp, Apparatus, suction Apparatus Anaesthetic equipments including endotracheal tubes -  
  
 OT Sterilization including Laminar Air flow  
  
 Trouble shooting - colored spots and corrosion, staining, dust deposit, recent amendment in EPA with reference to waste disposal.
2. Anaesthesia Service, History, pre-operative, Intra operative & post operative care
3. General Anaesthesia Techniques
4. Local Anaesthesia Techniques
5. Blood Transfusion
6. Monitoring in the Operation Theatre
7. Positioning of Patient
8. Instrument planning for various surgical procedure and Auxillary instrumentation.
9. O.T. Techniques  
 O.T. environment, control of infection scrubbing, theatre cloths including lead apron and goggles.
10. Duties of Nurses - Ethics, behaviour during surgery, etc.,

### Scheme of Examination Theory

There shall be one theory paper of three hours duration carrying 100 marks. Distribution of type of questions and marks for Introduction to Operation Theatre Technology shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	12 (To attempt 10)	10 x 5	50
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			100

**PRACTICAL EXAMINATION -**

**40 Marks**

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
5800 S. UNIVERSITY AVENUE  
CHICAGO, ILLINOIS 60637

## RESEARCH REPORT

REPORT NO. 1000

DATE: 1960

BY: [Name]

ADVISOR: [Name]

DEGREE: [Degree]

ABSTRACT: [Abstract text]

INTRODUCTION: [Introduction text]

CONCLUSIONS: [Conclusions text]

REFERENCES: [References list]

APPENDICES: [Appendices list]

Second Year Annual Examination to be held in the year 2022,  
2023, 2024

CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year

COURSE TITLE: Sociology

COURSE CODE: BOTT204

DURATION OF EXAMINATION: 3 HOURS

Subsidiary Subjects

## SOCIOLOGY

Teaching Hours : 20

### Course Description

This course will introduce student to the basic sociology concepts, principles and social process, social institutions [in relation to the individual, family and community and the various social factors affecting the family in rural and urban communities in India will be studied.

### Introduction :

Meaning - Definition and scope of sociology

Its relation to Anthropology, Psychology, Social Psychology

Methods of Sociological investigations - Case study, social survey, questionnaire, interview and opinion poll methods.

Importance of its study with special reference to health care professionals

### Social Factors in Health and Disease:

Meaning of social factors

Role of social factors in health and disease

### Socialization :

Meaning and nature of socialization

Primary, Secondary and Anticipatory socialization

Agencies of socialization

### Social Groups:

1. Concepts of social groups, influence of formal and informal groups on health and sickness. The role of primary groups and secondary groups in the hospital and rehabilitation setup.

### Family :

The family, meaning and definitions

Functions of types of family

Changing family patterns

Influence of family on individual's health, family and nutrition, the effects of sickness in the family and psychosomatic disease and their importance to physiotherapy

### Community :

Rural community: Meaning and features - Health hazards to rural communities, health hazards to tribal community.

Second Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year

COURSE TITLE: Sociology

COURSE CODE: BOTT204

DURATION OF EXAMINATION: 3 HOURS

Urban community - Meaning and features - Health hazards of urbanities

**Culture and Health :**

Concept of Health  
Concept of culture  
Culture and Health  
Culture and Health Disorders

**Social Change :**

Meaning of social changes  
Factors of social changes  
Human adaptation and social change  
Social change and stress  
Social change and deviance  
Social change and health programme  
The role of social planning in the improvement of health and rehabilitation

**Social Problems of disabled :**

Consequences of the following social problems in relation to sickness and disability remedies to prevent these problems  
Population explosion  
Poverty and unemployment  
Beggary  
Juvenile delinquency  
Prostitution  
Alcoholism  
Problems of women in employment

**Social Security :**

Social Security and social legislation in relation to the disabled

**Social Work :**

Meaning of Social Work  
The role of a Medical Social Worker

Second Year Annual Examination to be held in the  
year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year

COURSE TITLE: Constitution of India

COURSE CODE: BOTT205

DURATION OF EXAMINATION: 3 HOURS

# INDIAN CONSTITUTION

Prescribed for the First Year students of all degree classes

**Unit-I:**

Meaning of the term 'Constitution' making of the Indian Constitution 1946-1940.

**Unit-II:**

The democratic institutions created by the constitution Bicameral system of Legislature at the Centre and in the States.

**Unit-III:**

Fundamental Rights and Duties their content and significance.

**Unit - IV:**

Directive Principles of States Policies the need to balance Fundamental Rights with Directive Principles.

**Unit - V:**

Special Rights created in the Constitution for: Dalits, Backwards, Women and Children and the Religious and Linguistic Minorities.

**Unit-VI:**

Doctrine of Separation of Powers legislative, Executive and Judicial and their functioning in India.

**Unit - VII:**

The Election Commission and State Public Service commissions.

**Unit - VIII:**

Method of amending the Constitution.

**Unit - IX:**

Enforcing rights through Writs:

**Unit - X:**

Constitution and Sustainable Development in India.

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Second Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 2<sup>nd</sup> Year

COURSE TITLE: Environmental Science & Health

COURSE CODE: BOTT206

DURATION OF EXAMINATION: 3 HOURS

## Environment Science And Health

Introduction to Environment and Health

Sources, health hazards and control of environmental pollution

Water

The concept of safe and wholesome water.

The requirements of sanitary sources of water.

Understanding the methods of purification of water on small scale and large scale.

Various biological standards, including WHO guidelines for third world countries.

Concept and methods for assessing quality of water.

Domestic refuse, sullage, human excreta and sewage their effects on environment and health, methods and issues related to their disposal.

Awareness of standards of housing and the effect of poor housing on health.

Role of arthropods in the causation of diseases, mode of transmission of arthropods borne diseases, methods of control



THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
5800 S. UNIVERSITY AVENUE  
CHICAGO, ILLINOIS 60637

### PROCEEDINGS OF THE 1978 MEETING

OF THE AMERICAN CHEMICAL SOCIETY  
DIVISION OF POLYMER CHEMISTRY  
AT THE UNIVERSITY OF CHICAGO  
CHICAGO, ILLINOIS  
SEPTEMBER 10-14, 1978

Course Contents Third Year

Main Subjects

## **PAPER-I OPERATION THEATRE TECHNOLOGY - CLINICAL**

Physical Facility  
Layout of Operation theatres  
Transition  
Peripheral Support areas  
Operating room  
Special procedure rooms  
Potential sources of injury to the caregiver & patient

Principles of aspects & sterile technologies  
Asepsis, surgical scrub, gowning & gloving  
Decontamination & disinfections  
Sterilization Assembly & packing  
Thermal sterilization  
Chemical sterilization  
Radiation sterilization  
Surgical instrumentation  
Fabrication  
Classification  
Powered surgical instruments  
Handling instruments

Specialized surgical equipment  
Electro catheter  
Laser  
Microsurgery  
Ultrasonography

Positioning prepping and draping the patient  
General surgery  
Breast procedures  
Abdominal surgery  
Liver Procedures  
Splenic procedures  
Pancreatic Procedures  
Oesophageal

**Third Year Annual Examination to be held in the  
year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year**

**COURSE TITLE: Operation Theatre Tech - Clinical**

**COURSE CODE: BOTT301**

**DURATION OF EXAMINATION: 3 HOURS**

### **Scheme of Examination**

#### **Theory**

There shall be one theory paper of three hours duration carrying 100 marks. Distribution of type of questions and marks for Paper-I Operation Theatre Technology - Clinical shall be as given under.



**Third Year Annual Examination to be held in the year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year**

**COURSE TITLE: Operation Theatre Tech. - Clinical**

**COURSE CODE: BOTT301**

**DURATION OF EXAMINATION: 3 HOURS**

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	12 (To attempt 10)	10 x 5	50
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
TOTAL MARKS			100

#### **PRACTICAL EXAMINATION**

One common practical for all the three papers with equal weight age of marks i.e. 40 practical marks for each paper.

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THE UNIVERSITY OF CHICAGO

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**Third Year Annual Examination to be held in the year 2022, 2023, 2024**  
**CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year**  
**COURSE TITLE: Operation Theatre Tech - Applied**  
**COURSE CODE: BOTT302**  
**DURATION OF EXAMINATION: 3 HOURS**

## **PAPER-II OPERATION THEATRE TECHNOLOGY - APPLIED**

Preoperative preparation of the patient  
Diagnostic procedures  
Pathological examination  
Radiological examination  
MRI  
Nuclear medicine studies  
Ultrasonography  
Endoscopy

Anaesthesia techniques  
Historical background  
Types of Anaesthesia  
Choice of Anaesthesia  
General Anaesthesia  
Indication of general anaesthesia  
Endotracheal intubation  
Maintenance  
Monitoring  
Emergency  
Balanced Anaesthesia  
Core of Anaesthetized patient  
Local & regional anaesthesia  
Spinal and epidural anaesthesia  
Intravenous anaesthesia agents  
Inhalational anaesthetic agents  
Anaesthetic Adjuvant drugs  
Complication of general anaesthesia  
Complication of local/regional anaesthesia  
Blood transfusion

The first part of the report is a general introduction to the project. It describes the objectives of the study and the methods used to collect and analyze the data. The second part of the report is a detailed description of the results of the study. This includes a discussion of the findings and their implications for the field of research. The final part of the report is a conclusion and a list of references.

THE RESULTS OF THE STUDY

The results of the study are presented in this section. The first part of the section is a description of the data that was collected. This includes information about the sample size, the demographic characteristics of the participants, and the measures that were used to assess the variables of interest. The second part of the section is a discussion of the findings. This includes a description of the main results of the study and a discussion of their implications for the field of research. The final part of the section is a list of references.



**Third Year Annual Examination to be held in the year 2022, 2023, 2024**

**CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year**

**COURSE TITLE: Operation Theatre Tech. - Applied**

**COURSE CODE: BOTT302**

**DURATION OF EXAMINATION: 3 HOURS**

Anaesthesia Machine & central gas supply  
Difficult intubation

**Scheme of Examination**  
**Theory**

There shall be one theory paper of three hours duration carrying 100 marks. Distribution of type of questions and marks for Paper-II Operation Theatre Technology - Applied shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	12 (To attempt 10)	10 x 5	50
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
GRAND TOTAL			100

**PRACTICAL EXAMINATION**

One common practical for all the three papers with equal weight age of marks i.e. 40 practical marks for each paper.

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The analysis focuses on identifying trends and patterns over time, which is crucial for making informed decisions.

The third part of the document provides a detailed breakdown of the results. It shows that there has been a significant increase in sales volume, particularly in the middle and lower income brackets. This suggests that the current marketing strategy is effective in reaching a wider audience.

Finally, the document concludes with several key recommendations. It suggests that the company should continue to invest in research and development to stay ahead of the competition. Additionally, it recommends a more targeted marketing approach to further increase market penetration.

Third Year Annual Examination to be held in the year 2022, 2023, 2024

CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year

COURSE TITLE: Operation Theatre Tech - Advance

COURSE CODE: BOTT303

DURATION OF EXAMINATION: 3 HOURS

## Paper-III

# Operation Theatre Technology - Advanced

### Operation Theatre Techniques for Speciality Surgery:-

Preparation, nursing requirement, equipments including instruments, Sutures & etc  
Anaesthesia techniques, patient positioning & recovery  
Gynecological /obstetric surgery  
Urologic surgery  
Orthopedic surgery  
Neurosurgery  
Ophthalmic surgery  
Plastic and reconstructive surgery  
Otorhinolaryngologic and head and neck surgery  
Thoracic surgery  
Cardiac surgery  
Vascular surgery  
Organ procurement and transplantation  
Thyroid surgery

### Scheme of Examination

#### Theory

There shall be one theory paper of three hours duration carrying 100 marks. Distribution of type of questions and marks for Paper-III -Operation Theatre Technology - Advanced shall be as given under.

TYPE OF QUESTION	NUMBER OF QUESTIONS	MARKS	SUB-TOTAL
LONG ESSAY (LE)	3 (To attempt 2)	2 x 10	20
SHORT ESSAY (SE)	12 (To attempt 10)	10 x 5	50
SHORT ANSWER (SA)	12 (To attempt 10)	10 x 3	30
GRAND TOTAL			100

### PRACTICAL EXAMINATION

One common practical for all the three papers with equal weight age of marks i.e. 40 practical marks for each paper

THE UNIVERSITY OF CHICAGO  
DEPARTMENT OF CHEMISTRY  
5800 S. UNIVERSITY AVENUE  
CHICAGO, ILLINOIS 60637

RESEARCH REPORT

NO. 1234

BY  
J. D. SMITH

1965

RESEARCH REPORT NO. 1234

BY J. D. SMITH

DEPARTMENT OF CHEMISTRY

THE UNIVERSITY OF CHICAGO

5800 S. UNIVERSITY AVENUE

CHICAGO, ILLINOIS 60637

1965

Subsidiary Subjects

## BIOSTATISTICS

Time Allotted: 20 Hours

Third Year Annual Examination to be held in the year 2022,  
2023, 2024

CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year

COURSE TITLE: Research & Biostatistics

COURSE CODE: BOTT304

DURATION OF EXAMINATION: 3 HOURS

### Course Description:

Introduction to basic statistical concepts: methods of statistical analysis; and interpretation of data

### Behavioural Objectives:

Understands statistical terms.

Possesses knowledge and skill in the use of basic statistical and research methodology.

### Unit - I : Introduction

Meaning, definition, characteristics of statistics.

Importance of the study of statistics.

Branches of statistics.

Statistics and health science including nursing.

Parameters and estimates.

Descriptive and inferential statistics.

Variables and their types.

Measurement scales

### Unit - II: Tabulation of Data

Raw data, the array, frequency distribution.

Basic principles of graphical representation.

Types of diagrams - histograms, frequency polygons, smooth frequency polygon, commulative frequency curve, ogive.

Normal probability curve.

### Unit - III : Measure of Central Tendency

Need for measures of central tendency

Definition and calculation of mean - ungrouped and grouped

Meaning, interpretation and calculation of median ungrouped and grouped.

Meaning and calculation of mode.

Comparison of the mean, and mode.

Guidelines for the use of various measures of central tendency.

### Unit - IV : Measure of Variability

Need for measure of dispersion.

The range, the average deviation.

The variance and standard deviation.

Calculation of variance and standard deviation ungrouped and grouped.

Properties and uses of variance and SD

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## APPENDIX

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Third Year Annual Examination to be held in the year 2022, 2023, 2024  
CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year  
COURSE TITLE: Research & Biostatistics  
COURSE CODE: BOTT304  
DURATION OF EXAMINATION: 3 HOURS

**Unit -V : Probability and Standard Distributions.**

Meaning of probability of standard distribution.  
The Binominal distribution.  
The normal distribution.  
Divergen

**Unit - VI : Samling Techniques**

Need for sampling - Criteria for good samples.  
Application of sampling in Community.  
Procedures of sampling and sampling designs errors.  
Sampling variation and tests of significance.

**Unit - VII : Health Indicator**

Importance of health Indicator.  
Indicators of population, morbidity, mortality, health services.  
Calculation of rates and rations of health.

1907-1908  
 The first year of the  
 school was a  
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 one. The  
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 well  
 attended.

1908-1909  
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 one. The  
 school was  
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 attended.

1909-1910  
 The third year  
 was also a  
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 school was  
 well  
 attended.



**Third Year Annual Examination to be held in the year 2022, 2023, 2024**  
**CLASS: B.Sc Operation Theatre Technology 3<sup>rd</sup> Year**  
**COURSE TITLE: Computer Application**  
**COURSE CODE: BOTT305**  
**DURATION OF EXAMINATION: 3 HOURS**

## BASICS IN COMPUTER APPLICATIONS

The course enables the students to understand the fundamentals of computer and its applications.

### **Introduction to Data processing :**

Features of computers, Advantages of using computers. Getting data into /out of computers. Role of computers. What is Data processing? Application areas of computers involved in Data processing. Common activities in processing. Types of Data processing, Characteristics of information. What are Hardware and Software?

### **Hardware Concepts :**

Architecture of computers, Classification of computers, Concept of damage. Types of storage devices. Characteristics of disks, tapes, Terminals, Printers, Network. Applications of networking concept of PC System care, Floppy care, Data care.

### **Concept of Software.**

Classification of software : System software. Application of software. Operating system. Computer system. Computer virus. Precautions against viruses. Dealing with viruses. Computers in medical electronics

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5301 SOUTH CAMPUS DRIVE  
CHICAGO, ILLINOIS 60637

### RESEARCH REPORT

REPORT NO. 1000  
TITLE: [Faint Title Text]

AUTHOR: [Faint Author Name]

DATE: [Faint Date]

ABSTRACT: [Faint Abstract Text]

KEYWORDS: [Faint Keywords]

NOTES: [Faint Notes]