

Curriculum for B Sc MLT
2nd Semester

Approved by BOS-MLT on 15.12.2008

Communication Skill – I

BMT – 102

THEORY

1. Reading a text book.
2. Précis and Comprehension
3. Significance of communication
4. Methods of Communication (Oral, Written, One way, two way communication skill).
5. Barriers of communication and technique to overcome those.
6. Meaning of effective communication
7. Written communication including (drafting a report, notices, agenda notes, preparations of summaries, circular, representation and press release).
8. Technical Report writing
9. Practice of writing personal resume and writing application for employment.

Communication Skill –II

BMT – 112

Practical

1. To study prose text book.
2. Précis writing and simple passage from a prescribed text book. At least 100 words should be chosen and few questions from the passage may be said to answer.
3. To practice all forms communication i.e. drafting report, agenda notes, précis writing, telegram, circular, representations, press release, telephonic communication, practice of writing personnel resume and writing application of employment.

Systematic bacteriology

BMT-104

THEORY

1. Bacterial culture
 - a. Instruments used to seed culture media
 - b. Culture procedures - seeding a plate
2. Staining techniques in bacteriology
 - a) Significance of staining in bacteriology
 - b) Principle, procedures and interpretation of the following staining techniques.
 - Simple staining
 - Negative staining
 - Gram stain
 - Albert's stain
 - Neisser's stain
 - Ziehl –Neelsen staining
 - Capsule staining
 - Flagella staining
 - Spore staining
 - Fontana stain for spirochetes.
3. Principle, procedures and interpretation of the following biochemical tests for identification of different bacteria.

a) Catalase	k) Carbohydrate fermentation
b) Coagulase	l) Huger and Leifson test
c) Indole	m) Bile solubility
d) Methyl Red	n) H ₂ S production
e) Voges Proskauer	o) Demonstration of motility
f) Urease	p) Decarboxylases
g) Citrate	q) CAMP test
h) Oxidase	r) Hippurate hydrolysis
i) TSIA	s) Nagler's reaction
j) Nitrate reduction	

4. Various characteristics (morphological, cultural and biochemical), pathogenesis and laboratory diagnosis of the following bacteria
- a) Staphylococcus
 - b) Streptococcus
 - c) Pneumococcus
 - d) Neisseria gonorrhoeae and Neisseria meningitis
 - e) Haemophilis
 - f) Corynebacterium
 - g) Enterobacteriaceae: Escherichia coli, Klebsiella, Citrobacter, Enterobacter, Proteus, Salmonella and Shigella
 - h) Vibrio, Aeromonas and Plesiomonas
 - i) Yersinia enterocolitica and Yersinia pestis
 - j) Clostridium
 - k) Mycobacteria (tuberculosis, atypical and leprae)
 - l) Spirochetes – Treponema, Borrellia and leptospira
 - m) Bordetella and brucella
 - n) Mycoplasma and Ureaplasma
 - o) Rickettsia
 - p) Chlamydia
 - q) Actinomyces
 - r) Pseudomonas and Burkholderia
 - s) Brief introduction about non sporing anaerobic cocci and bacilli.

Systematic bacteriology

BMT - 114

Practical

1. To demonstrate the instruments used to seed culture media
2. To learn techniques for Inoculation of bacteria on culture media
3. To isolate specific bacteria from a mixture of organisms.
4. To demonstrate simple staining (Methylene blue)
5. To prepare India ink preparation to demonstrate negative staining.
6. Bacterial identification : To demonstrate reagent preparation and procedure for
 - (a) Gram stain
 - (b) Albert stain

- (c) Neisser's staining
 - (d) Z-N staining
 - (e) Capsule staining
 - (f) Demonstration of flagella by staining methods
 - (g) Spore staining
 - (h) To demonstrate spirochetes by Fontana staining procedure
7. To prepare the reagent and demonstrate following biochemical tests with positive and negative control bacteria:
- (a) Catalase
 - (b) Coagulase
 - (c) Indole
 - (d) Methyl Red
 - (e) Voges Proskauer test
 - (f) Urease
 - (g) Citrate
 - (h) Oxidase
 - (i) TSIA
 - (j) Nitrate reduction
 - (k) Carbohydrate fermentation
 - (l) Huger and Leifson test
 - (m) Bile solubility
 - (n) H₂S production
 - (o) Demonstration of motility
 - (p) Decarboxylases
 - (q) CAMP test
 - (r) Hippurate hydrolysis
 - (s) Nagler's reaction

Basic Haematology Techniques – II

BMT – 106

THEORY

1. Haemoglobin pigments and their measurement.
2. Abnormal haemoglobins, their identification and estimation.
3. Normal haemostatic mechanism and theories of blood coagulation.
4. Physiological properties of various coagulation factors.
5. Classification of coagulation factors.
6. Preparation and standardization of coagulation reagents such as tissue Thromboplastin, Cephalin, Thrombin, M/40 CaCl₂ and Kaolin Solution.
7. Screening coagulation tests such as BT, CT, Hess test, PT & APTT etc.

Basic Haematology Techniques – II

BMT - 116

Practical

1. To measure the levels of Methaemoglobin, Carboxy and sulphahaemoglobin
2. To determine platelet count of the given sample using phase contrast microscope.
3. To determine PT, PTI, INR and APTT of the given sample.
4. To prepare the following in laboratory
 - a) Brain Thromboplastin, Cephalin, Thrombin, M/40 CaCl₂ and Kaolin Solution.

Human Anatomy & Physiology - II

BMT – 108

THEORY

1. Body fluids and their significance : Important terms , types of body fluid , total body water , avenues by which water leaves and enters body , general principles for fluid balance , cardinal principle , How body fluids maintain Homeostasis , Electrolytes & ions Function of electrolytes , How electrolyte imbalance leads to fluid imbalance
2. Digestive system: Organisation ; accessory organs ; structure & function (Mouth, Tongue, Teeth, Oesophagus , Pharynx, Stomach, Intestine, Rectum, Anus); Digestive glands; physiology of digestion of carbohydrates ,lipids & proteins
3. Liver: structure and function
4. Urinary system: Main parts , Structure & function of kidney , structure of nephron, physiology of excretion & urine formation , urine , additional excretory organs
5. Genital system: Structure of male and female reproductive system, Gametogenesis in male & female, menstrual cycle.
6. Nervous system: Parts, function & structure ; brain , spinal cord , spinal & cranial nerves ; All & none principal , role of neurotransmitters in transmission of nerve impulse
7. Spleen, Thymus: Structure & function of spleen & Thymus gland; Tonsils - Structure & function; general information about lymphatic system
8. Endocrine system: Endocrine & exocrine glands, their location, structure & functions

Human Anatomy & Physiology - II

BMT – 118

PRACTICAL

1. To study circulatory system (charts)
2. To study digestive system (charts)
3. Study of Urinary system (charts)
4. Study of Genital system (male & female)
5. To study nervous system (From models / charts)
6. To study various body fluids.

Metabolism in Biochemistry

BMT – 110

THEORY

1. Introduction to Cell: -

- a) Cell Organelles & their functions.
- b) Separation & purification of Biomolecules.

2. Carbohydrate Metabolism

- a) Introduction & Importance
- b) Classification
- c) Digestion and Absorption
- d) Metabolism: - Glycolysis, Citric acid cycle, Gluconeogenesis
Glycogenolysis, Glycogenesis
- e) Disorders of carbohydrate metabolism.

3. Protein Metabolism

- a) Introduction & Importance
- b) Molecular structure of protein
- c) Classification of Proteins
- d) Important properties of proteins.
- e) Protein synthesis
- f) Digestion & absorption of Proteins
- g) Metabolism: -Urea Cycle
- h) Disorders of proteins metabolism

4. Lipid

- a) Introduction
- b) Classification
- c) Properties of fat
- d) Breakdown of fatty acids
- e) Digestion & absorption of fats

- f) Fatty acid biosynthesis & fatty acid oxidation

5. Nucleic Acid

- a) Introduction
- b) Functions of Nucleic acid
- c) Functions of energy carriers

6. Enzymes

- a) Introductions & Importance
- b) Classifications & Properties of enzymes
- c) Mechanism of enzyme action
- d) Factors affecting enzyme action
- e) Enzyme kinetics & enzyme inhibitors
- f) Clinical Enzymology

Metabolism in Biochemistry

BMT – 120

Practical

1. To determine the presence of carbohydrates by Molish test.
2. To determine the presence of reducing sugar by fehling solutions
3. To determine the presence of reducing sugar by benedicts method.
4. To determine starch by Iodine test.
5. Determination of glucose in serum & plasma
6. Estimates of blood glucose by Folin & Wu method
7. Determination of urea in serum, plasma & urine.
8. Determination of Creatinine in serum or plasma
9. Determination of serum albumin
10. Determination of cholesterol in serum or plasma