REVISED SYLLABUS OF PARAMEDICAL
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021

PROGRAMME: THREE-YEAR B.Sc. (PARAMEDICAL)

PARAMEDICAL

(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular Activities & Model Q.P.)
For Five Courses of 1, 2, 3 & 4 Semesters)
(To be Implemented from 2020-21 Academic Year)

Domain Subject: MARKET ORIENTED COURSE PARAMEDICAL SCIENCE

Activities, References & Model Q.P
For Five Courses of 1, 2, 3, 4 & 5 Semesters)

"The domain subject "**PARAMEDICAL SCIENE"**, embracing the fields of human anatomy, human physiology, bio chemistry and hematology and microbiology. This course is meat for providing employment opportunities for the graduates in the paramedical sector.

GENERAL CURRICULAR ACTIVITIES

- **Lecturer-based**:

1) **Class-room activities**: Organization of Group discussions, question-answer sessions, scientific observations, use of audio-visual aids, guidance programmes, examination and evaluation work (scheduled and surprise tests), quizzes, preparation of question banks, student study material, material for PG entrance examinations etc.

2) **Library activities**: Reading books and magazines taking notes from prescribed and reference books and preparation of notes on lessons as per the syllabus; Reading journals and periodicals pertaining to different subjects of study; Making files of news-paper cuttings etc.

3) **Lab activities**: Organization of practicals use of virtual laboratory , maintenance of lab attendance registers/log registers, maintenance of glassware and chemicals

4) **Activities in the Seminars, workshops and conferences**: Organization of at least one seminar/workshop/conference per academic year either on academic/research aspects and inculcate research spirit among students

5) **Research activities**: Student study projects (General / RBPT model), Minor or Major research projects, Research guidance to research scholars, Publication of research articles/papers (at least one in 2 years) in UGC-recognized journals, Registration in Vidwan/Orcid/Scopus/Web of Science

6) **Smart Classroom Activities**: Organization of Departmental WhatsApp groups, Ed Modo groups/Google Class Rooms/Adobe Spark groups for quick delivery of the subject; Preparation of Moocs content & presentation tube lessons by trained lecturers; Using smart/digital/e- class rooms (mandarory) wherever present; Utilization of YouTube videos (subject to copy rights) etc.

- **Student-based**:

1) **Class-room activities**: Power point presentations, seminars, assignments

2) **Library activities**: Visit to library during library hour and preparation of notes

3) **Lab activities**: Maintenance of observation note book and record, keeping lab clean and tidy

4) **Activities in the Seminars, workshops and conferences**: Participation/presentation in seminar/workshop/conference

CO-CURRICULAR ACTIVITES

- **OBJECTIVES:**

The co-curricular activities are aimed at strengthening the theoretical knowledge with an activity related to the content taught in the class room. The aesthetic development, character building, spiritual growth, physical growth, moral values, creativity of the student.
The different types of co-curricular activities relevant to Sericulture domain are listed below:

- **Academic – based**

- Preparation of Charts/Clay or Thermocol Models
- Debates, Essay Writing Competitions
- Group Discussions
- Departmental magazine
- Formation of Book clubs
- Paramedical importance album-making
- Viva-Voce

- **Lab/Research –based**

- Documentaries
- Field Visit/Excursions/to Paramedical centres
- Training at paramedical centres
- Exposure to scientific instruments and hands-on experience
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- **Value - based**

- Organization of works shop with the doctors from the primary health centres for awareness on the role of paramedics in the Medical & health sector

- **Observation of Days of National/International Importance**

World Cancer Day (February 4th)	International Biological Diversity Day (May 22nd)
Darwin Day (February 12th)	World Turtle Day (May 23rd)
National Science Day (Feb 28th)	World blood Donor Day (June 14th)
World Wildlife day (March 3rd)	World Zoonoses Day (July 6th)
National Vaccination Day (March 16th)	World Mosquito Day (August 20th)
World Health Day (April 7th)	World Turtle Day (May 23rd)
Earth Day (April 22nd)	World Mosquito Day (August 20th)
Malaria Day (April 25th)	World Animal day (October 4th)
World Hepatitis Day (May 19th)	World Fisheries Day (November 21)
National Doctors Day (July 1)	Blood Donor's Day- (June 14)

Course Structure of Core Market oriented course **Paramedical Technology**

YEAR	SEM	PAPER	TITLE	MARKS		CREDITS
				CIA	SEE	
I	I	I	**HUMAN ANATOMY**	25	75	03
			Practical - I		50	02
	II	II	**HUMAN PHYSIOLOGY**	25	75	03
			Practical - II		50	02
II	III	III	**BASIC PRINCIPLES OF BIOCHEMISTRY**	25	75	03
			Practical - III		50	02
	IV	IV	**CLINICAL BIOCHEMISTRY**	25	75	03
			Practical - IV		50	02
		V	**CLINICAL HEMATOLOGY & MICROBIOLOGY**	25	75	03
			Practical - V		50	02
III	V	VI	**SEC1**	25	75	03
			SEC1 PRACTICAL-VI		50	02
		VII	**SEC2**	25	75	03
			SEC2 PRACTICAL -VII	25	75	03
	VI		**APPRENTICE SHIP**			

Recommended Combination: Zoology, Chemistry & Paramedical Technology

AP STATE COUNCIL OF HIGHER EDUCATION

w.e.f. 2020-21 (Revised in April, 2020)

MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR -SEMESTER-I - PAPER-I

HUMAN ANATOMY

Course Outcomes: By the completion of the course the graduate should able to –

CO1: Explain the different types of cells and Tissues

CO2: Explain the mechanism of digestion, absorption & breathing

CO3: Describe the cardiovascular and excretory systems

CO4: Explain the hepatobiliary and endocrine regulations

CO5: Describe the neurotransmitters ,male and female genitals

Learning objectives

1. To understand the concept different types of cells and Tissues .

2. To understand the mechanism of digestion, absorption & breathing .

3. To understand the cardiovascular and excretory systems .

4. To understand the hepatobiliary and endocrine regulations.

5. To understand the neurotransmitters ,male and female genitals

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR -SEMESTER-I - PAPER-I

HUMAN ANATOMY

UNIT- 1

1.1Cell and its structure,

1.2Cell organelles and its functions,

1.3Types of cells- Eukaryotic, Prokaryotic and its difference,

1.4 Tissues- types, properties, differences.

UNIT- 2

2.1 Digestion & Absorption.

2.2 Breathing - Exchange of Gases.

UNIT- 3

3.1 Excretory System – Excretory Products and their Elimination.

3.2 Cardio Vascular System- Structure of Heart, Cardiac Cycle.

UNIT-4

4.1 Hepatobiliary system- Liver and its Functions.

4.2 Endocrine System- Hormonal regulation.

UNIT-5

5.1 Nervous System- Neurotransmitters.

5.2 Reproductive System – Male and Female Genitals.

Reference Books:

1. Ross & Wilson Anatomy & Physiology in Health & Illness by Waugh (A).
2. Textbook of Medical Physiology by G.K. Pal.
3. Review of Medical Physiology by Ganong.
4. Text book of Medical Physiology by Guyton(AC)

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR -SEMESTER-I - PAPER-I

HUMAN ANATOMY

MODEL QUESTION PAPER

Time : 3 hrs **Max. Marks : 75**

SECTION –I

Answer any FIVE of the following **5x5 = 25 Marks**

(Draw labelled diagrams wherever necessary)

1. SQ from Unit 1
2. SQ from Unit 1
3. SQ from Unit 2
4. SQ from Unit 3
5. SQ from Unit 3
6. SQ from Unit 4
7. SQ from Unit 5
8. SQ from Unit 5

SECTION –II

Answer ALL the questions each question carries 10 marks **5x10=50 Marks**

(Draw diagrams wherever necessary)

9. (a) Question form Unit 1 (or)
   (b) Question form Unit 1
10. (a) Question form Unit 2 (or)
    (b) Question form Unit 2
11. (a) Question form Unit 3 (or)
    (b) Question form Unit 3
12. (a) Question form Unit 4 (or)
    (b) Question form Unit 4
13. (a) Question form Unit 5 (or)
    (b) Question form Unit 5

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR -SEMESTER-I- PAPER-I

PRACTICAL SYLLABUS

HUMAN ANATOMY

1. Structure and Parts of Human Digestive System.
2. Structure and Parts of Circulatory System.
3. Structure and Parts of Reproductive System.
4. Structure and Parts of Central Nervous System.
5. Structure and Parts of Respiratory System.
6. Structure and Parts of Excretory System.
7. Different Types of Tissues.
8. Structure and Parts of Eye.
9. Structure and Parts of Ear
10. Structure and Parts of Nose
11. Cell structure
12. Cell Organelles and its structures
13. Endocrine Glands and Its Functions

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR - SEMESTER-II -PAPER-II

HUMAN PHYSIOLOGY

Course Outcomes: By the completion of the course the graduate should able to –

CO1: Describe the structure and contraction of muscle

CO2: Explain the structure and functions of Integumentary system

CO3: Describe the structure and physiology of gastrointestinal tract

CO4: Explain physiology of sense organs

CO5: Describe the transport functions of the biological membranes

Learning objectives

1. To understand the structure and contraction of muscle .

2. To understand the structure and functions of Integumentary system .

3. To understand the structure and physiology of gastrointestinal tract .

4. To understand the physiology of sense organs

5. To understand the transport functions of the biological membranes

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR - SEMESTER-II -PAPER-II

HUMAN PHYSIOLOGY

UNIT- 1

1.1 Anatomy & Physiology of Muscle: Muscle types & functions, Microscopic anatomy of skeletal muscles skeletal muscle activity;

1.2 Structure in brief, mechanism of muscle contraction, isotonic and isometric contractions, energy sources of muscle contractions, motor unit.

1.3 Excitation – contraction coupling Muscle movement's types, and Types of body movements

UNIT- 2

2.1 Support & Movement : Skin and Its Appendages, Skeletal Tissues, Skeletal SystemArticulations,

2.2 Classification of body membranes (cutaneous, mucous, serous, and connective membranes),

2.3 Integumentary system (skin), Basic skin functions, Structure of the skin (epidermis & dermis), Skin color.

UNIT- 3

3.1 Gastro intestinal tract: Functional anatomy of G.I.T

3.2 Functions of G.I secretions

3.3 Principles of secretion and movements of GIT.

UNIT-4

4.1 Special Senses: Vision: Structure of eyeball, retina, visual pathway, accommodation, visual acuity,error of refraction, color vision.Hearing:

4.2 Brief account external, middle and inner ear, hearing tests.

4.3 Taste& Smell: receptors, pathways, method of transduction.

UNIT-5

5.1 Cell junctions, cell membrane transport- a)Simple diffusion through lipid layer, protein layer, types of protein channels or ion channels .

5.2 b) passive transport c) active transport-Primary active transport, Secondary active transport,

5.3 Electroencephalogram (EEG), Physiology of sleep, Epilepsy.

Reference Books:

1. Ross & Wilson Anatomy & Physiology in Health & Illness by Waugh (A).
2. Textbook of Medical Physiology by G.K. Pal.
3. Review of Medical Physiology by Ganong.
4. Samson Wrights Applied Physiology.
5. Text book of Medical Physiology by Guyton(AC)
6. Seeley's Essentials of Anatomy & Physiology, 9th Edition.

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

FIRST YEAR - SEMESTER-II -PAPER-II

HUMAN PHYSIOLOGY

MODEL QUESTION PAPER

Time : 3 hrs **Max. Marks : 75**

SECTION –I

Answer any FIVE of the following **5x5 = 25 Marks**

(Draw labelled diagrams wherever necessary)

1. SQ from Unit 1
2. SQ from Unit 1
3. SQ from Unit 2
4. SQ from Unit 3
5. SQ from Unit 3
6. SQ from Unit 4
7. SQ from Unit 5
8. SQ from Unit 5

SECTION –II

Answer ALL the questions each question carries 10 marks **5x10=50 Marks**

(Draw diagrams wherever necessary)

9. (a) Question form Unit 1 (or)
   (b) Question form Unit 1
10. (a) Question form Unit 2 (or)
    (b) Question form Unit 2
11. (a) Question form Unit 3 (or)
    (b) Question form Unit 3
12. (a) Question form Unit 4 (or)
    (b) Question form Unit 4
13. (a) Question form Unit 5 (or)
    (b) Question form Unit 5

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

PRACTICAL SYLLABUS
FIRST YEAR - SEMESTER-II -PAPER-II

HUMAN PHYSIOLOGY

1. Measurement of human electrocardiogram (ECG).
2. Analysis of human blood pressure.
3. Measuring the respiratory function
4. Monitoring of muscle activity by electromyography (EMG).
5. Experiments on the hearing system- Rinne tuning fork test
6. Measuring hearing acuity by pure tone audiometry (PTA).
7. Sometosensory receptors
8. The optical system of the eye and the retina.
9. Examination of bioelectrical signals accompanying brain function(EEG)
10. Rapid immunological assay determining human chorionic gonadotropin (HCG)
11. Descriptions of the used physical, chemical and mathematical units, concepts and procedures.

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR - SEMESTER-III PAPER-III

PRINCIPLES OF BIOCHEMISTRY

Course Outcomes: By the completion of the course the graduate should able to –

CO1: Describe the properties of water

CO2: Describe the carbohydrates types & basic structure

CO3: Describe the structure and types of proteins

CO4: Explain the structure and types of Lipids

CO5: Describe the properties and nomenclature of vitamins

Learning objectives

1. To understand the properties of water

2. To understand the carbohydrates types & basic structure

3. To understand the structure and types of proteins.

4. To understand the structure and types of Lipids.

5. To understand the properties and nomenclature of vitamins

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR - SEMESTER-III PAPER-III

PRINCIPLES OF BIOCHEMISTRY

UNIT- 1

1.1 Water – Physical Properties, Structure and its interactions,
1.2 Role of Water in Life.

1.3 PH & Buffers- Bronsted-Lowry Theory of Acids and Bases,

1.4 Buffers- Biological Buffer Systems.

UNIT- 2

2.1 Carbohydrates: – Monosaccharides, Polysaccharides - Definition, Classification, Properties & Reactions.

UNIT- 3

3.1 Proteins: – Definition, Classification, Properties& Reactions. 3.2 Amino acids: - Definition,

Classification, Properties & Reactions.

UNIT- 4

4.1 Lipids: – Definition, Classification, Properties& 4.2 Reactions. Enzymes: - Definition,

Classification, Properties & Reactions.

UNIT- 5

5.1 Vitamins &Minerals: A, B, C, D, E& K-

5.2 Nomenclature, Sources, Occurrences, Functions and its Metabolisms.

Reference Books

1. A Text book of Medical Biochemistry- Chatterjae&Shinde.
2. A Text book of Biochemistry- C.B.Powar&Chatwal.
3. Principles of Biochemistry- Nelson Cox.
4. Medical laboratory Procedure Manual (T-M) by K.L. Mukherjee 1987, Vol.I, II & III Tata

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR - SEMESTER-III PAPER-III
PRINCIPLES OF BIOCHEMISTRY

MODEL QUESTION PAPER

Time : 3 hrs **Max. Marks : 75**

SECTION –I

Answer any FIVE of the following **5x5 = 25 Marks**

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2. SQ from Unit 1
3. SQ from Unit 2
4. SQ from Unit 3
5. SQ from Unit 3
6. SQ from Unit 4
7. SQ from Unit 5
8. SQ from Unit 5

SECTION –II

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12. (a) Question form Unit 4 (or)
    (b) Question form Unit 4
13. (a) Question form Unit 5 (or)
    (b) Question form Unit 5

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR - SEMESTER-III PAPER-III

PRINCIPLES OF BIOCHEMISTRY PRACTICAL SYLLABUS

1. General Instructions
2. Units of Measurements
3. First Aid Equipment Kit kept in a Laboratory
4. Collection of Specimen and Preservation
5. Types of blood used for tests
6. Qualitative Analysis of Carbohydrates Sample- 1
7. Qualitative Analysis of Carbohydrates Sample -2
8. Qualitative Analysis of Proteins Sample -1
9. Qualitative Analysis of Proteins Sample-2
10. Identification of unknown Amino acids by Paper Chromatography.
11. Identification of unknown Sugars by Paper Chromatography.
12. Estimation of Blood Glucose by GOD –POD Method.
13. Estimation of Serum Bilirubin by Enzymatic Method

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER-IV- PAPER-IV

CLINICAL BIOCHEMISTRY

Course Outcomes: By the completion of the course the graduate should able to –

CO1: Describe the clinical bio chemistry of carbohydrates

CO2: Explain the clinical bio chemistry of proteins

CO3: Describe the clinical bio chemistry of lipds

CO4: Explain the chemistry and metabolism of enzymes

CO5: Differentiate hypoglycaemia from hyperglycaemia.

Learning objectives

1. To understand the clinical bio chemistry of carbohydrates .

2. To understand the clinical bio chemistry of proteins .

3. To understand the clinical bio chemistry of lipds.

4. To understand the chemistry and metabolism of enzymes .

5. To understand the hypoglycaemia and hyperglycaemia

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER-IV- PAPER-IV

CLINICAL BIOCHEMISTRY

UNIT-I

Chemistry of carbohydrates & their related metabolism -

1.1 Brief outline of Metabolism: Glycogenesis &Glycogenolysis (in brief)

1.2 Glycolysis, citric acid cycle & its significance

1.3 HMP shunt & Gluconeogenesis (in brief), regulation of blood glucose level, Metabolic disorders.

UNIT -2

Chemistry of Proteins & their related metabolism -

2.1 Brief outline of Metabolism: Transformation, Decarboxylation,

2.2 Ammonia formation & transport, Urea cycle, Metabolic disorders in urea cycle, catabolism of amino acids especially

2.3 Phenylalanine, Tyrosine & Tryptophan, Creatine, Creatinine , Proteinuria.

UNIT -3

Chemistry of Lipids & their related metabolism -

3.1 Introduction, definition, classification, biomedical importance, essential fatty acids.

3.2 Brief out line of metabolism: þ- oxidation of fatty acids, fatty liver, Ketosis

3.3 Cholesterol & it's clinical significance, Lipoproteins in the blood composition & their functions in brief, Atherosclerosis.

UNIT- 4

Chemistry of Enzymes& their related Metabolism -

4.1 Diagnostic value of serum enzymes -Creatinine kinase, Alkaline phosphatase, Acid phosphatase,

4.2 LDH, SGOT, SGPT,Amylase, Lipase, Carbonic anhydrase etc. Acidosis, Alkalosis

UNIT- 5

Hyperglycemia & hypoglycemia -

5.1 Diabetes mellitus - definition, types, features, gestation diabetes mellitus, glucose tolerance test, Glycosuria,Hypoglycemia & its causes

Reference Books

1. A Text book of Medical Biochemistry- Chatterjae&Shinde.
2. A Text book of Biochemistry- C.B.Powar&Chatwal.
3. Principles of Biochemistry- Nelson Cox.
4. Medical laboratory Procedure Manual (T-M) by K.L. Mukherjee 1987, Vol.I, II & III Tata

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER-IV- PAPER-IV

CLINICAL BIOCHEMISTRY

MODEL QUESTION PAPER

Time : 3 hrs **Max. Marks : 75**

SECTION –I

Answer any FIVE of the following **5x5 = 25 Marks**

(Draw labelled diagrams wherever necessary)

1. SQ from Unit 1
2. SQ from Unit 1
3. SQ from Unit 2
4. SQ from Unit 3
5. SQ from Unit 3
6. SQ from Unit 4
7. SQ from Unit 5
8. SQ from Unit 5

SECTION –II

Answer ALL the questions each question carries 10 marks **5x10=50 Marks**

(Draw diagrams wherever necessary)

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    (b) Question form Unit 2
11. (a) Question form Unit 3 (or)
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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER-IV- PAPER-IV

CLINICAL BIOCHEMISTRY

PRACTICAL SYLLABUS

1. Oral Glucose Tolerance Test
2. Estimation of Blood Urea by DAM Method
3. Estimation of Serum Creatinine by Jaffe's Method
4. Estimation of Serum Cholesterol & Total Lipid Profile.
5. Estimation of SGOT & SGPT.
6. Estimation of Triacylglycerol by both Enzymatic and Non-Enzymatic Methods
7. Determination of Electrolytes.
8. Determination of Serum Inorganic Phosphate.
9. Determination of Acid Phosphatase
10. Determination of Serum Inorganic Phosphorus
11. Estimation of Serum Calcium by OCPC Method
12. Estimation of Uric Acid by Uricase –Peroxidase Reaction Method
13. Estimation of Serum Proteins by Biuret Method

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER- IV PAPER-V

CLINICAL HEMATOLOGY & CLINICAL MICROBIOLOGY

Course Outcomes: By the completion of the course the graduate should able to –

CO1: Describe the collection and screening of body fluids

CO2: Explain the haematological analysis

CO3: Describe the structure and types of bacteria

CO4: Explain the commonly used equipment in microbiological laboratory

CO5: Describe the concepts of sterilisation, antiseptics, disinfections

Learning objectives

1. To understand the collection and screening of body fluids

2. To understand the haematological analysis

3. To understand the structure and types of bacteria.

4. To understand the commonly used equipment in microbiological laboratory.

5. To understand the concepts of sterilisation, antiseptics, disinfections

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER- IV PAPER-V

CLINICAL HEMATOLOGY & CLINICAL MICROBIOLOGY

UNIT-1

1.1 Body Fluids – Differential count of Peritoneal, Pericardial, Pleural Fluids and CSF, Charging Chamber, Identification and Counting the Cells.

1.2 Collection of Specimens:

1.3 Blood: Types of Specimens, Collection, Precautions during collection processing and preservation.

UNIT-2

1.1 Hematology & Blood Analysis: - Blood cell formation & Function, Normal Count of Blood Cells and their variations

1.2 Total Count of RBC, WBC, Platelet, and Reticulocytes. Hemoglobin estimation, Foetal Hemoglobin estimation.

1.3 Hemoglobin electrophoresis, Serum electrophoresis, Complete Hemogram.

UNIT- 3

Cell structure, functions and structure of Bacteria:

3.1 Definition, Structure and functions of the cell- Types of cells- Eukaryotic and Prokaryotic cells- Structure of Bacteria-

3.2 Types of Bacteria- Classification of Bacteria on the bases of shapes- Structure of Gram positive and Gram negative bacteria with special reference to the cell wall.

UNIT-4

Common equipments used in Microbiology laboratory:

4.1 Introduction to common equipments- Types of equipments used in Microbiology laboratory-

4.2 Principle and Uses of Incubator, Hot Air Oven, Water Bath, Anaerobic Jar, Centrifuge, Autoclave, Microscope

4.3 Safety Measures in handling microbiology equipments.

UNIT- 5

Concept of Sterilization, Antiseptics & Disinfectants:

5.1 Meaning and definition- Role of Sterilization- Classification and Uses of Sterilization

5.2 General Principles of Sterilization- Meaning, Definition,

5.3 Uses of Antiseptics and Disinfectants- Types and Mode of action.

Reference Books

1. A Text book of Medical Physiology- Guyton and Hall
2. A Text book of Medical Pathology- Robins

3.Text book of Medical Microbiology - Prescott.
4.A Text book of Microbiology- Ananthanarayanan.
5. An Introduction to Microbiology - Gerad J. Tortora

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER- IV PAPER-V

CLINICAL HEMATOLOGY & CLINICAL MICROBIOLOGY

MODEL QUESTION PAPER

Time : 3 hrs **Max. Marks : 75**

SECTION –I

Answer any FIVE of the following **5x5 = 25 Marks**

(Draw labelled diagrams wherever necessary)

1. SQ from Unit 1
2. SQ from Unit 1
3. SQ from Unit 2
4. SQ from Unit 3
5. SQ from Unit 3
6. SQ from Unit 4
7. SQ from Unit 5
8. SQ from Unit 5

SECTION –II

Answer ALL the questions each question carries 10 marks **5x10=50 Marks**

(Draw diagrams wherever necessary)

9. (a) Question form Unit 1 (or)
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12. (a) Question form Unit 4 (or)
    (b) Question form Unit 4
13. (a) Question form Unit 5 (or)
    (b) Question form Unit 5

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MARKET ORIENTED COURSE PARAMEDICAL TECHNOLOGY

SECOND YEAR -SEMESTER- IV PAPER-V

CLINICAL HEMATOLOGY & CLINICAL MICROBIOLOGY

PRACTICALS SYLLABUS

1. Drawing of Capillary Blood & Venous Blood.
2. Determination of Bleeding Time & Clotting Time.
3. Human Chorionic Gonadotropin Test.
4. Identification of Blood Groups.
5. Study of Blood Smear for differential Count.
6. Estimation of Hemoglobin.
7. Total count of RBC.
8. Total Count of WBC
9. Determination of Platelet Count.
10. Determination of ESR.
11. Detection of Malaria Parasite.
12. Sickle Cell Test
13. Identification, principle and Working of instruments
    a. Incubator,
    b. Hot Air Oven,
    c. Water Bath,
    d. Anaerobic Jar,
    e. Centrifuge,
    f. Autoclave, &
    g. Microscope