SHORT TERM VOCATIONAL

CERTIFICATE COURSE

PHLEBOTOMY TECHNICIAN(SAMPLE COLLECTION)

(06 months course)

Prepared by

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Phlebotomy Technician (Sample Collection)

1.	**Name of the Course**	**:**	**PHLEBOTOMY TECHNICIAN**
2.	**Sector**	**:**	Medical
3.	**Course Code**	**:**	PTHM
4.	**Qualification**	**:**	**S.S.C**
5.	**Duration**	**:**	**06 Months (240 hrs)**

Introduction

Phlebotomy Technician course is designed to teach the knowledge in technical and procedural aspects of basic phlebotomy, including collection of blood specimens and venipuncture required to become a Phlebotomy Technician. The Phlebotomy Technician course includes theory and hands-on instruction.

The course will teach students the concepts of Introduction to Phlebotomy & Infection Control, Legal issues in Healthcare, Introduction to Human Anatomy & Physiology, Phlebotomy Equipment & Supplies, Phlebotomy Procedures, and Phlebotomy Fundamental Essentials. This course is designed for learners who want to advance their career, or interested in starting a career in the medical field to become a Phlebotomy Technician.

Objectives of the Course:

- To develop individuals with scientific, technical, innovative and sophisticated knowledge and skills for medical laboratory technology related works.

Skills

- To train the student to understand the needs of the management of the

medical labs.

- To train the student to understand the needs and purpose of record keeping of all the equipment, materials and the patient's records.
- To train the students to understand the needs of medical lab equipment sterilization.

Job Opportunities:

- Phlebotomy work is increasing in the medical field, so as the paucity of Phlebotomist is increasing as there is increase in number of Hospitals, medical Colleges along with Diagnostics Centers
- Majority of Phlebotomists are employed in the Hospitals or self-employed (establish own Medical Lab)
- Demand of Phlebotomists in abroad is ever green and can work at flexible times.

Scheme of the Course:

Module	Theory		On Job Training/Practical		Total	
	Hours	Weightage	Hours	Weightage	Hours	Weightage
I	140	60%	100	40%	240	100%
40 Hours: English + Course content: 100 Hours			On the job training 100 Hours			

Division of Marks:

Theory: 100 Max. Marks				
S.no.	Section	No. Of Questions	Marks per Question	Marks
1	Communicative English	4 questions	4 x5	20 marks
2	Short Questions	6 questions	6 x5m	30 marks
3	Long Questions	4 questions	4x10	40 marks
4	Multiple Choice Questions	10 questions	10x1	10 marks
Practical: 100 Max. Marks				
1	External	4 questions	4x10	40 marks
2	Record/Mini Project &	-	-	10 marks

	Viva			
3	**Internship / OJT**	**-**	**-**	**50 marks**

THEORY + PRACTICAL (ON THE JOB TRAINING): 240:00 HRS.

S. No.	List of Contents	No. of periods in Hours.	
		Theory	**OJT**
1.	Communicative English	**40**	**-**
1.	Introduction to Phlebotomy	10	-
2	Infection Control Practices in Laboratory	15	10
3	Legal Issues in Healthcare	5	-
4	Introduction to Human Anatomy & Physiology	15	5
5	Medical Terminology	5	-
6	Phlebotomy Equipment & Supplies	15	10
7	Phlebotomy Procedure: Blood Collection Systems	15	60
8	Phlebotomy Fundamental Essentials	10	10
9	Quality Management in Laboratory	10	5
	Total Hours	**140**	**100**
		140+100 = 240	

COURSE SYLLABUS: THEORY **Total Number of Hours: 140**

UNIT 1: Introduction to Phlebotomy

- Definition of Phlebotomy

- Roles and Responsibilities of Phlebotomy Technician
- Attributes of a good phlebotomist: Training, professionalism, License, certification
- History of phlebotomy
- Areas of employment.
- Definition and types of hospitals
- Definition and classification of Laboratory
- Work Process Flow of Laboratory
- Departments of laboratory
- Functions of laboratory

UNIT 2: Infection Control Practices in Laboratory

- Definition of infection and chain of infection.
- Modes of infection transmission.
- Breaking of chain of infection- Contact, Droplet, Air borne –precautions
- Health care safety hazards
- Occupational Safety and Health Hazard Administration [OSHA]
- Universal Precautions
- Hand hygiene
- Personal Protective Equipment
- Biomedical Waste Management
- Safe injection practices
- Spillage management
- Needle stick injury
- Discuss latex allergy and prevention
- Safety data sheets
- Incident reporting
- Ergonomics
- Environmental surveillance
- Vaccination of staff

Unit-3: Legal Issues in Health Care

- Civil law, Tort law
- Negligence / Malpractice
- What is standard of care?
- Basic elements of Negligence

- Types of damages
- Types and sources of laws consent
- Patient's rights
- Scope of practice, good Samaritan law, and uniform anatomical gift act

Unit-4: Introduction to Human Anatomy and Physiology

- Human Body: Introduction-functions
- Introduction to Human Anatomy and Physiology
- Cell – Definition, Structure and properties
- Tissue – Classification in brief [epithelial, connective, muscular, nervous].
- Muscle physiology & Nerve physiology
- Vascular system
- Human blood and Connective tissue
- Formed elements and proportion of Blood
- RBC/ WBC
- Types and Functions of RBC, WBC
- Process of Phagocytosis and Hemostasis
- Blood plasma and serum
- Antibody and Antigen
- Blood transfusion and Blood group
- Blood vessels
- Arterial system: Function and structure - Vasodilation, Vasoconstriction
- Venous system: function and Structure
- Capillaries: Functions
- Veins for phlebotomy
- Body planes
- Respiratory tract system.
- Digestive system.
- Genitourinary system.
- Endocrine system.
- Cardiovascular system
- Nervous system
- Integumentary system.
- Skeletal system.

Unit-5: <u>Medical Terminology</u>

- A-V Alphabet Medical Terminology

Unit-6: <u>Phlebotomy Equipment and Supplies</u>

- Gloves
- Tourniquet
- Alcohol pads
- Gauze
- Bandage
- Needles
- Needle holder
- Sharp container
- Evacuated blood collection tubes &inversion technique
- Blood specimens in Phlebotomy
- Tube additives
- Blood collection color coded tubes
- Order of draw
- Dermal puncture
- Equipment & supplies required for dermal puncture
- Container
- Capillary tubes
- Lancet
- Warming device
- Dermal puncture order of flow
- Centrifuge
- Specimen processing.

Unit-7: <u>Phlebotomy procedure</u>

- Donning and Doffing
- Bleeding time competency
- Glucose testing competency
- Capillary tube blood collection procedure
- Blood smear
- Vein puncture using multi sample needle [method]-butterfly needle method

Unit-8: <u>Phlebotomy fundamental essentials</u>

- Vein puncture complications
- Areas of concerns
- Tourniquet test
- How to avoid hemolysis?
- Specimen labeling
- Specimen handling [light, time, temperature]

- Specimen transporting
- Precautions to be considered
- Rejection of specimen
- Test requisition
- Blood collection from pediatric and neonates
- Blood sugar & culture collection
- Therapeutic Drug Monitoring [TDM]
- Urine, stool, sputum collection

UNIT 9: Quality Management in Laboratory:

- Definition of quality management
- Uses of quality management
- Calibration of equipment
- Storage of reagents
- Quality indicators

On Job Training (Practical) Total Number Of Hours: 100

1. Introduction to Phlebotomy
   - role of a phlebotomy technician
   - hazards faced by the workers
2. Definition and types of hospitals
3. Definition and classification of Laboratory
4. Work Process Flow of Laboratory
5. Departments of laboratory
6. Functions of laboratory
   - Infection Control practices in laboratory
   - Describe standard precautions
   - Hand hygiene
   - Personal Protective Equipment
   - Biomedical Waste Management
   - Safe injection practices
   - Spillage management
   - Needle stick injury
   - Discuss and demonstrate the use of biohazard container in phlebotomy
   - Discuss and describe blood borne pathogen standards
7. Safety data sheets

8. Incident reporting
9. Environmental surveillance

Phlebotomy Equipment and Supplies

Identify phlebotomy equipment used forperforming phlebotomy

Identify phlebotomy supplies used forperforming phlebotomy

Describe correct specimen transport,handling, and processing procedures

Apply the knowledge learned to fulfillthe job responsibilities of an entry level phlebotomy technician

Phlebotomy procedure

- Donning and Doffing
- Bleeding time competency
- Glucose testing competency
- Demonstrate techniques of performing vein puncture
- Identify sites of vein puncture
- Demonstrate techniques of performingdermal puncture.
- Capillary tube blood collection procedure
- Blood smear preparation and staining
- Discuss and demonstrate blood collection from pediatric and neonates
- Discuss and demonstrate blood cultures
- Discuss and demonstrate bloodcollection for legal purposes
- Explain and discuss therapeutic drug monitoring
- Discuss and demonstrate urine specimen collection
- Discuss and demonstrate stool specimen collection
- Discuss and demonstrate sputumspecimen collection
- Discuss and demonstrate throat swabspecimen collection.

Phlebotomy fundamental essentials

- Specimen handling, Transport & Rejection
- Discuss Phlebotomy complication
- Discuss the areas of concerns on Phlebotomy
- Discuss and demonstrate tourniquet test
- Discuss on how to avoid hemolysis
- Discuss and demonstrate properspecimen handling techniques
- Identify and discussrejection of specimens

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REGD. NO:

TIME: 3 HRS **MAX MARKS: 100**

PHLEBOTOMY TECHNICIAN
MODEL QUESTION PAPER (THEORY)
SECTION- A

COMMUNICATIVE ENGLISH **20 MARKS**

SECTION- B

Note: a) Answer ALL questions.

b) Each question carries **5 Marks**. **6X5M=30 MARKS**

1. Define phlebotomy. Write briefly about the roles and responsibilities of a phlebotomist.
2. What are the various systems in a human body? Write in detail about cardiovascular system with a neat labelled diagram.
3. What are universal precautions? Write in detail about various personal protective equipment used in your laboratory and their uses.
4. Describe about the consumables required for sample collection.
5. What are the various samples collected in a laboratory? Write in detail about venous sample collection procedure.
6. Write in detail about urinary system in a human body. Draw a neat labelled diagram.

SECTION- C

Note: a) Answer any **Four** questions.

b) Each question carries **10 Marks**. **4X10M=40 MARKS**

1. Define infection. Write in detail about the donning and doffing procedures.
2. What are the complications encountered during sample collection? What are the precautions to be taken to avoid these complications?
3. Define order of draw. Write in detail about the procedure for capillary sample collection.
4. Define Glucose Tolerance Test? Write in detail the procedure of GTT.
5. Write the procedure to collect blood sample from a child of 3 years age.

SECTION-D 10X1=10 Marks

1. Sample for viral screening is collected in …….

(a) Plane Vaccutainer (b) EDTA Vaccutainer (c) Grey Capxcv Vaccutainer (d) all the above.

2. What is the full form of RBC?

(a) Red blood cells (b) real blood cells (c) both a and b (d) regular blood cells

3. Full form of EDTA is ……

(a) Ethylene Diamine Tetra Acetic Acid (b) Erythron Diamine Tetra Acetate (c) Erythron Diamine Tetra Acetic Acid (d) both a and b

4. Components of blood include ……

(a) RBC, WBC, PLATELETS, Plasma (b) RBC, WBC

(c) PLATELETS, Plasma (d) All of the above

5. What is the full form of PPE?

(a) Personal Protective Equipment (b) Puncture Proff Equipment

(c) Personal Proof Equipment (d) None of the above

6. Parts of cardiovascular system include ……..

(a) Heart, Blood vessels, blood (b) Heart

(c) both a and b (d) All the above

7. Procedure of wearing PPE is called ……...

a. Donning b. Doffing c. Both a and b d. Phlebotomy

8. Biomedical waste is divided into …….. categories.

a. 4 b. 3 c. 6 d. 7

9. Sample collected from a vein is called …….

a. Venous sample b. Arterial sample c. Capillary sample

d. All the above

10. The torniquet should be tied not more than ……. Minutes.

a. 5 b. 2 c. 6 d. 10

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PHLEBOTOMY TECHNICIAN
MODEL QUESTION PAPER (PRACTICAL)

Note: a) Answer ALL questions.

b) Each question carries **10 Marks**. **4X10=40MARKS**

1. Write and demonstrate in detail the procedural steps of venous blood sample collection from an adult patient

2. Write and demonstrate the procedure of preparation of blood smear and Blood Grouping.

3. Write and demonstrate the procedure of the hand hygiene.

4. Define Personal Protective Equipment. Write and demonstrate in detail about the Donning and Doffing procedures.

Record/Mini Project & Viva **10 Marks**

Internship/OJT **50Marks**