

**FURTHER DETAILS REGARDING MAIN TOPICS OF
PROGRAMME No. 10/2019 (Item No.32)**

**BLOOD BANK TECHNICIAN
HEALTH SERVICES**

(Category No.005/2018)

DIPLOMA IN BLOOD BANK TECHNOLOGY

The course curriculum is divided into eight modules:

Module I

- Blood containers and anticoagulants
- Blood collection and preservation
- Blood component preparation and storage
 - o Preparation of cellular components
 - o Preparation of plasma components
 - o Preparation of special products like washed cells, leucoreduced cells etc.

Module II

- ABO blood group system
- Rh blood group system
- Other Blood Group Systems

Module III

- Basic hematology
- Basic immunohematology
- Direct Coomb's test
- Indirect Coomb's test

Module IV

- Compatibility testing
- Antibody detection and identification
- Transfusion reactions

Module V

- Microbiology
 - o HIV
 - o HBV
 - o HCV
 - o Syphilis
 - o Malaria

Module VI

- Hemolytic disease of newborn
- Autoimmune hemolytic anemia
- Transfusion practice in different clinical situations

Module VII

- Autologous transfusion
- Apheresis
- Newer Technologies

Module VIII

- Quality control in blood banking
- Documentation and record keeping

KEY WORDS

- I. a. Collection system
 - o Blood Bags
 - o Anticoagulants

b .Blood collection and processing

- Donor selection
- Phlebotomy and collection of blood
- Post donation care and advice
- Adverse donor reactions

c. Preservation and storage of blood

- Anticoagulant preservative solutions
- Storage temperature for blood
- Physical and chemical changes in stored blood
- d. Blood component preparation and storage
- Preparation of packed red blood cells
- Indication for packed RBC
- Leuco-depleted blood products
- Washed red blood cells
- Fresh frozen plasma, preparation, storage and indication for use.
- Cryoprecipitate and indications for use
- Platelet rich plasma and platelet concentrate
- Quality control of platelet products
- Indications for platelet transfusion
- Refractoriness to platelet transfusion
- Irradiated blood components

II

a, ABO blood group system

- A and B antigens
- Biochemistry and inheritance of ABH antigens
- Bombay phenotype
- Antibodies of the ABO blood group system

- Subgroups of A, AB and B
- Dangerous O

b. The Rh blood group system

- Basic genetics of the Rh system
- Rh antigens
- Weaker variants of D antigen
- Rh antibodies, cause of Rh antibody production
- v.Problems in Rh grouping and resolving

c, Other Blood Group systems

- Common other Blood group systems
- Applications to Routine Blood Banking
- Detection And Identification Of Antibodies

III a.Basic hematology

- Erythropoiesis
- Formed elements of blood
- Anatomy and physiology of red blood cells
- Structure and function of different types of leucocytes
- Platelets and its function
- Red cell metabolism
- Blood coagulation

b.Basic immunohematology

- Immune response to antigen exposure
- Primary and secondary response to antigens
- Antigen antibody reactions
- Factors affecting antigen-antibody reactions
- Immunoglobulins- different classes, structure and function
- Complement, activation of classical pathway and activation of alternate pathway

c, Antiglobulin test

- Principle
- Application of antiglobulin test
- Direct AHG
- Indirect AHG
- Factors affecting the sensitivity of AHG
- Sources of error in antiglobulin test

IV

a. Microbiology

- .Hepatitis B virus
- Transmission of HBV
- Serological and biochemical markers of HBV infection
- Hepatitis B carriers
- Hepatitis C virus
- Serology of HCV
- HIV, structure of virus
- Immunopathogenesis of HIV infection
- Transmission of HIV
- Clinical course of HIV infection
- Serological profile of HIV infection
- Detection of malaria
- Cytomegalovirus (CMV) infection
- Transfusion transmissible syphilis
- Bacterial contamination of blood and blood components

V .a. Compatibility testing

- Antibody screening and identification
- Identification of recipient blood sample

- .ABO and Rh grouping
- Checking the patient's previous records
- Selection of blood
- Cross-matching,
- Different causes of incompatibility
- Compatibility testing in emergency

b. Blood transfusion reactions

- Hemolytic transfusion reactions
- Lab investigations in HTR
- Febrile non-hemolytic transfusion reactions
- Anaphylactic and urticarial reactions
- Transfusion related acute lung injury
- Graft vs. Host disease
- Circulatory overload
- Iron overload

VI

a. Hemolytic disease of the newborn

- Pathophysiology of HDN
- Factors influencing the production of Rh antibodies
- Antenatal assessment of Rh HDN
- Investigation on newborn
- Selection of blood for exchange transfusion
- Investigation in ABO HDN

b. Transfusion practice in clinical medicine

- Transfusion practice in surgery and hemorrhage
- Coagulation disorders
- Massive transfusion
- Transfusion therapy in new born

VII

a. Autologous transfusion

b. Apheresis

c .Newer Technologies

- Gel Technology
- .Automation

VIII

- Quality control in blood banking
 - Standard operating procedure manual
 - Quality assurance of laboratory testing, reagents and equipments
 - Quality control of test kits used for TTI testing
 - Quality control of blood components
- Documentation and record keeping

NOTE: - It may be noted that apart from the topics detailed above, questions from other topics prescribed for the educational qualification of the post may also appear in the question paper. There is no undertaking that all the topics above may be covered in the question paper