SAUDI DIPLOMA TRAINING PROGRAM

BLOOD BANKING AND TRANSFUSION

Final Written Examination

Examination Format:

The Saudi subspecialty fellowship and diplomas final written examination shall consist of one paper with 80-120 multiple-choice questions (single best answer out of four options). Up to 10% unscored items can be added for pretesting purposes.

Passing Score:

1. The passing score is 70%.
2. If the percentage of candidates passing the examination before final approval is less than 70%, the passing score must be lowered by one mark at a time aiming at achieving 70% passing rate or 65% passing score whichever comes first. Under no circumstances can the passing score be reduced below 65%.

Blueprint Outlines:

No.	Sections	Percentage
1	Blood Donor Management	13%
2	Aphaeresis Procedure	12%
3	Blood Components	15%
4	Transfusion-Transmitted Diseases (TTD)	10%
5	Basic and Advanced Immunohematology	25%
6	Special Transfusion Preparation and Management	15%
7	Organization and Management of Transfusion Services	5%
8	Continuous Quality Management	5%
Total		100%

Note:

- Blueprint distributions of the examination may differ up to +/- % in each category.
- Percentages and content are subject to change at any time. Seethe SCFHS website for the most up-to-date information.
- Research, Ethics, Professionalism and Patient Safety are incorporated within various domains.

1. Blood Donor Management

- Donor registration criteria.
- Allogeneic and autologous blood donation: Definition, types, clinical applications.
- Criteria for donor selection (DHQ): Medical/physical history, examination, and informed consent.
- Donor recruitment and recall: Policy, methodology, and documentation.
- Types of blood bags, anticoagulants, and preservatives.
- Whole blood collection and phlebotomy procedure and sample collection.
- Donor adverse reactions and their management.
- Type of donor deferral and counseling.

2. Aphaeresis Procedure

- Apheresis donor criteria and selection and monitoring.
- Principles of aphaeresis technology, instruments and systems for apheresis collections and therapeutic apheresis.
- Basic principles and indications of hematopoietic stem cell transplantation.
- Indications, collection, processing, and storage of peripheral blood stem cell.
- Apheresis collection: Red cells, platelets, plasma, and granulocytes.
- Types of therapeutic apheresis: Indication, management and procedures.
- Technical principles of therapeutic apheresis: Anticoagulation, timing of procedures, replacement fluids and venous access.
- Donor/patient adverse reactions and their management.
- Pediatric considerations for therapeutic apheresis.

3. Blood Components

- Principles of blood component preparation.
- Blood component handling, storage, and modification.
- Blood component quality control.
- Main constituents and functions of circulating blood: Hematopoiesis.
- Types of blood bag systems and types of anticoagulants and preservatives.
- Blood/blood components: Indications, dosage, and administration.
- Methods to increase plasma transfusion safety.
- Proper labeling (ISBT) of various components: RBC, FFP, PLTC, Cryo.
- Transportation and shipping of blood components.
- Basic knowledge of plasma fractionation (preparation, indications, dose).

4. Transfusion-Transmitted Diseases (TTD)

- Principles of testing procedures (serology and NAT).
- Implications of reactive results (donor deferral, re-entry, and lookback).
- Transfusion-transmitted infectious viral and parasitic agents.
- Bacterial contamination of blood components.
- Screening assays: ELISA, microparticle assays, chemiluminescence assays, particle agglutination assays and simple rapid assays.
- Nucleic acid amplification techniques (NAT).
- Confirmatory testing.
- Selecting screening assay.

5. Basic and Advanced Immunohematology

- Principles of basic immunology: Antigen, antibody, complement, immunoglobin.
- Antigen-antibody reaction.
- ABO blood group and Rh system.
- Principles of basic genetics.
- Genetics of blood groups: Phenotype and genotype.
- Principles of blood group inheritance.
- Other blood group systems: Lewis, li, MNS,Kell, Duffy, Kid, P.
- High and low frequence antigens.
- Pre-transfusion testing and interpretation of antibody screening and crossmatching.
- Antibody screening and identification.
- Direct antiglobulin test (DAT).
- Ehancement technique: Eluation, adsorption.
- Platelet, HLA, and granulocyte antigens and antibodies.
- Principle of homeostasis and coagulation.

6. Special Transfusion Preparation and Management

- Clinical indications of blood components transfusion.
- Administration of blood components.
- Components modification (e.g., irradiation, washing, freezing, and leukoreduction).
- Hemostatic and thrombotic disorders.
- Transfusion in hemoglobinopathies.
- Management of transfusion adverse reactions.
- Components pathogen inactivation.
- Massive transfusion.
- Maximal surgical blood order schedule (MSBOS).
- Blood substitutes and hemopoietic agents.
- Basic knowledge of disseminated intravascular coagulation (DIC).
- Hemolytic disease of fetus and newborn (HDFN).
- Transfusion support for hematopoietic stem cell transplant recipients.

7. Organization and Management of Transfusion Services

- Management of blood banks and transfusion services.
- Blood components inventory management.
- Blood utilization auditing.
- Hemovigilance.
- Management of facilities, work environment, and safety in blood banks.
- Basic knowledge of patient blood management (PBM).
- Job descriptions, responsibilities, and delegation.
- Statistics and daily report system.
- Disaster plan.
- Ethical and legal considerations pertaining to transfusion practice.
- Interpersonal and communication skills.
- Donor notification, counseling and look back program.
- Hospital transfusion committee.
- Policies and procedures.

8. Continuous Quality Management

- Quality concepts (Quality control, quality assurance and quality management).
- Quality management system essentials.
- Quality awareness.
- Safety regulations
- Accreditation and the role of regulatory agencies.
- Instruments and equipment (Validation, calibration, installation and maintenance plan).
- Internal and external quality assessment.
- Quality control of blood, blood components, reagents and diagnostic kits.
- Good manufacturing practice (GMP).

Suggested References:

1. Harmening, D.M. (2018). Modern Blood Banking and Transfusion Practices (7th ed.). Philadelphia, PA: F.A.Davis Company.

2. Fung MK, Eder AF, Spitalnik SL, Westhoff CM (eds). Technical Manual. 20th Bethesda, MD: AABB Press.

Note:

This list is intended for use as a study aid only. SCFHS does not intend the list to imply endorsement of these specific references, nor are the exam questions necessarily taken solely from these sources.