January 2023

Qualification Exam Blueprint for Bachelor of Science in Anesthesia

Aligned with the National Qualification Standard (NQS)

National Alliance for Quality of Anesthesia Education (NAFQAE)

Addis Ababa, Ethiopia

Acknowledgment

This Qualification Exam Blueprint for Bachelor's Degree in Anesthesia Program is developed by the National Alliance for Quality of Anesthesia Education (NAFQAE) in collaboration with 5 Ethiopian Higher Education Institutions (HEIs) providing Anesthesia Bachelor level training and the Ethiopian Association of Anesthetists (EAA), and the Health Workforce Improvement Program (HWIP).

This document is made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the Cooperative Agreement 72066320CA00008. The contents are the responsibility of teaching institutions and do not necessarily reflect the views of USAID or the United States Government.

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- Dilla University (DU)
- Dire Dawa University (DDU)
- Menelik II Health Science College (MIIHSC)
- University of Gondar (UOG)
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Introduction

Exam blueprinting is a critical step in the exam development process. It helps sample essential content areas and competencies with appropriate emphasis to ensure the validity of exams.

A test blueprint also known as test specification is a grid, which allows examiners to generate content-valid exams by linking the required subject content and competencies to the items appearing on the test. It is highly recommended for high-stakes exams like qualifying and licensure exams. It enables proper sampling of content and competencies as well as the selection of appropriate assessment methods and tools.

Besides, it makes assessment 'fair' to the students as they can have a clear idea of what is being examined and can direct their learning efforts in that direction. Blueprinting helps teachers in designing instructional strategies as per the guidelines expected in the curriculum, providing appropriate emphasis on content, competencies, and tools.

Purpose and Goals

The main purpose of the qualifying exam is to verify the competence and attest readiness of final-year anesthesia students for a minimally supervised practice (during their internship) ensuring patient safety and contributing to quality healthcare provision.

The goal of this blueprint is to improve quality and standardize assessment practices thereby improving students' competence and their performances on licensure examinations.

Content development and organization

The blueprint is broadly organized employing practice-related frameworks such as the CanMeds framework emphasizing anesthetists' broader roles (also now as domains) in their routine health care practice. In accordance with the national qualification standard and licensing exam blueprint frameworks, we used the following ***five domains*** as an overarching organization framework for the blueprint: Patient care, Professionalism, Education, research and evidence-based practice, Leadership and management, and Health promotion and disease prevention.

After a critical review of the existing local and international evidence on qualification standards, the competencies expected of the baccalaureate degree qualifiers were defined under the five broader roles. Accordingly, the expected exit level ***13 competencies*** were identified, and their interaction is depicted in the competency network diagram below (Fig 1).

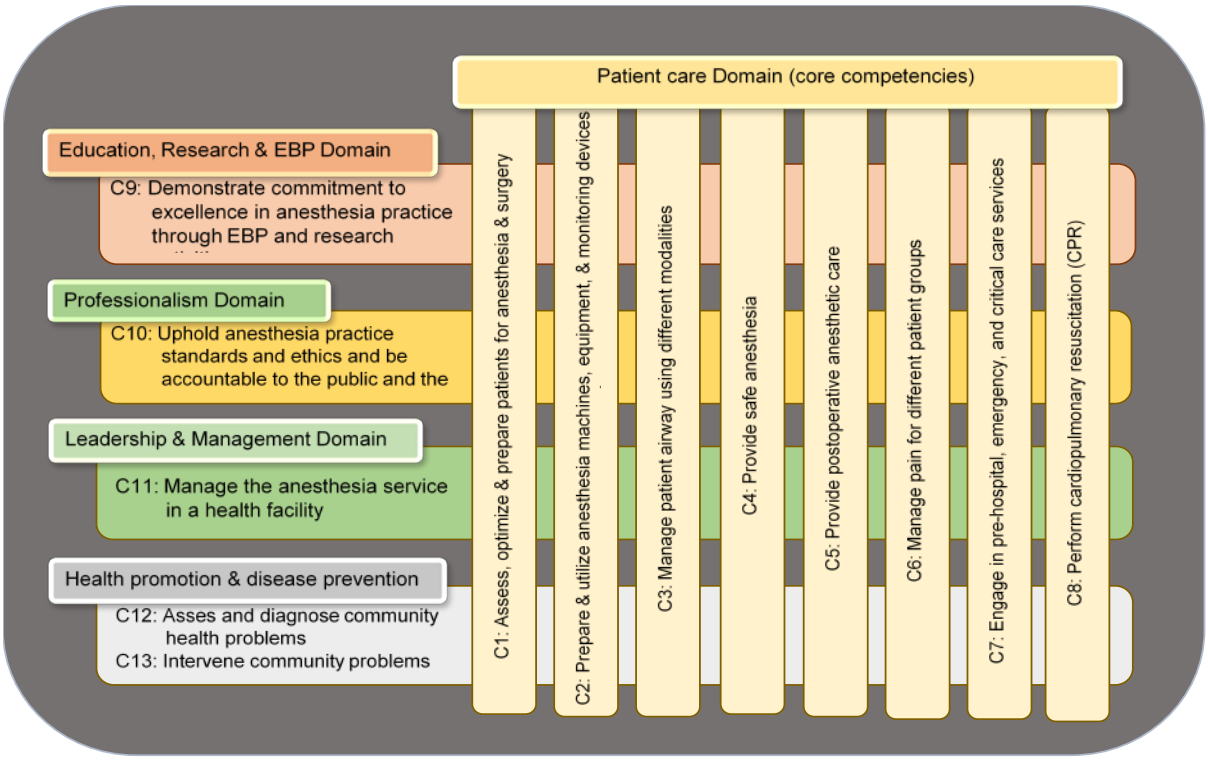

Figure 1: Competency framework

As illustrated in Figure 1 above, the patient care domain is broken down into eight core competencies that are identified following the main patient care process in which anesthetists are involved: Pre-operative, intraoperative, postoperative and out-of-operating room care. The intraoperative anesthesia management competency (C4) further broken down in to twelve content categories using anesthesia sub-specialty areas. Efforts have been made to use frameworks most faculty are accustomed to so as to enhance common understanding.

Competencies and content categories were then broken down into tasks that corresponded to the job assignments and respective scope of practice for baccalaureate anesthetists. We began with a list of 75 tasks, which was letter condensed to ***55 tasks*** after a critical review by a group of 13 subject matter experts. The 20 tasks were either repetitions, exceeded the scope of practice, or were too specific to be considered stand-alone tasks. The agreed upon 55 tasks were common activities anesthetists perform in their daily practice in the health care or community setting.

The bled mixes of knowledge, skills, and attitudes that construct each task were then identified as higher-order assessment objectives, ensuring alignment with the overarching task, competency, and domain.

Finally, congruent assessment methods were selected and relative emphasis was assigned per task, competency, and domain levels. This blueprint recommended three types of assessment methods: two for the cognitive domain (written exam and structured oral exam formats) and an objective structured clinical exam (OSCE) for clinical skills and affective domain. These methods were selected based on their proven psychometric properties.

The written exam shall employ the single best answer multiple choice question (MCQ) format which is predominantly context-based to assess higher-order thinking. There should also be an adequate number of items on the exam, most experts recommend 150-200 MCQs for written exams.

On the other hand, the practical exam will be OSCE encompassing various key tasks such as communication (history taking, counseling, and patient education), performing a physical examination, procedures, and at times interpreting diagnostic tests and abnormal findings. Taking feasibility into account, one integrated OSCE with 12-16 stations involving each competency area and each lasting approximately 10 minutes shall be designed.

Setting emphasis

Once the final list of 55 tasks was agreed upon, the 12 senior anesthesia subject matter experts were briefed on the 5-point importance-by-frequency rating scheme, and a virtual survey was sent to them (twice) to rate each task using the importance-by-frequency grid. Rating descriptions were as follows:

> Importance: This rating indicates how important this task is for intern anesthetists' effective performance in their practice when compared to other tasks. 1 = nearly not important at all; 2 = less important; 3 = moderately important; 4 = very important; and 5 = critically important.
>
> Frequency: This rating indicates how frequently or infrequently intern anesthetists will perform this task during their practice. 1 = never; 2 = rarely; 3 = seldom; 4 = regularly; 5 = very often.

For each task rating, composite scores were calculated (from the second-round rating) by multiplying the mean importance score by the mean frequency score. Considering the total emphasis as 100% relative emphasis was calculated for each task.

The emphasis at the task level was added up to compute the emphasis at the competency and domain levels. The below table demonstrated summary emphasis per domain/ major role (table 1). Furthermore, the sample number of items is indicated in the table below, assuming a 200-item MCQ-based exam is designed.

Table 1: Sample summary emphasis table for a 200-items based exam

Domains and competencies	Emphasis (%)	# of items
Domain 1: Patient care	**85.0%**	**170**
C1: Assess, optimize, and prepare patients for anesthesia and surgery	15%	30
C2: Prepare & utilize anesthesia machines, equipment, supply, and monitoring devices	17%	34
C3: Manage patients' airways using different modalities	12%	24
C4: Manage safe anesthesia	22.5%	45
C5: Provide postoperative anesthetic care	6%	12
C6: Manage pain for different patient groups	3.5%	7
C7: Engage in pre-hospital, emergency, and critical care services	3.5%	7
C8: Perform cardiopulmonary resuscitation (CPR)	5.5%	11
Domain 2: Professionalism and ethics	**8.0%**	**16**
Domain 3: Education, research, and EBP	**2.5%**	**5**
Domain 4: Leadership and management	**3.0%**	**6**
Domain 5: Health promotion and disease prevention	**1.5%**	**3**
Total	**100%**	**200**

A two-dimensional content-by-process summary matrix with raw and column emphasis driven by the frequency-by-importance rating is shown below (table 2) for core professional competencies (C1-C5) that account for nearly three-fourths of the total emphasis (72.5%).

Table 2: Content by process two-dimensional blueprint summary with emphasis

Area	C1: Assess, optimize, & prepare patients **[15%]**	C2: Prepare & utilize anesthesia machines, equipment, and devices **[17%]**	C3: Manage patients' airways **[12%]**	C4: Manage safe anesthesia **[22.5%]**	C5: Provide postoperative anesthetic care **[6%]**	**Total**
Obstetrics and gynecologic anesthesia	2.0	2.0	2.0	4.0	1.0	**11.0**
Pediatric and neonatal anesthesia	1.5	1.5	1.0	2.0	0.5	**6.5**
Geriatric anesthesia	1.0	1.0	1.0	1.5	0.5	**5.0**
General and urologic surgery anesthesia	2.0	2.5	1.0	2.5	0.5	**8.0**
Trauma and orthopedic anesthesia	2.0	2.0	1.0	2.5	0.5	**8.0**
Neurosurgery anesthesia	1.0	1.0	1.0	1.5	0.5	**5.0**
Thoracic emergency anesthesia	0.5	0.5	0.5	0.5	0.0	**2.0**

Area	C1: Assess, optimize, & prepare patients **[15%]**	C2: Prepare & utilize anesthesia machines, equipment, and devices **[17%]**	C3: Manage patients' airways **[12%]**	C4: Manage safe anesthesia **[22.5%]**	C5: Provide postoperative anesthetic care **[6%]**	**Total**
Maxillofacial and ENT anesthesia	0.5	1.0	0.5	1.0	0.5	**3.5**
Ophthalmic anesthesia	0.5	0.5	0.5	0.5	0.0	**2.0**
Day-case and remote anesthesia	0.5	0.5	0.0	0.5	0.0	**1.5**
Regional anesthesia	1.5	2.5	2.0	3.5	1.0	**10.5**
Anesthesia for common co-existing disorders	2.0	2.0	1.5	2.5	1.0	**9.0**
Total	**15.0**	**17.0**	**12.0**	**22.5**	**6.0**	**72.5**

The above two-dimensional summary matrix creates the opportunity to visualize what percentage of the exam is allocated to different patient care processes. Accordingly, the majority of patient care percent emphasis is allocated to intraoperative anesthesia management, followed by preoperative equipment/drug preparation and airway management.

Anesthesia training programs are strongly advised to use the above summary framework (table 2) to monitor the appropriateness of emphasis set to competencies as well as the care process. It is also commendable to use this framework to analyze exam results in order to identify exam performance gaps by competence and care process areas.

How to use this document

This blueprint can be used by faculty and departments to develop high-quality qualification or comprehensive exams. The blueprint framework can be used to organize and build question banks so that exam assembly and administration are easier. It helps standardize exams and improve their quality thereby making inferences defensible and acceptable to all stakeholders. Departments are also encouraged to share the blueprint with students to help them focus on key competencies and essential knowledge, skills, and professional behaviors expected of them. Sharing a blueprint for students is in line with the "principles of fairness" of high-stakes exams and international best practices.

However, for the exam blueprint to have its desired impact, exam items should be carefully designed. The quality of the questions crafted should match the key competencies and learning outcomes outlined in the exam blueprint. Besides, faculty should give attention to writing high-quality items aligned with assessment objectives. An item review session by peers is also recommended before items appear on exams or are stored in a question bank.

A sample integrated exam blueprint for OSCE is provided separately. Anesthesia departments must ensure that the total emphasis for OSCE is at least 40% and not more than 50%.

Domain 1: Patient care [85%]

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Competency 1: Assess, optimize, and prepare patients for anesthesia and surgery			**15.0%**
Task 1.1.1. Perform comprehensive pre-anesthetic patient assessment			3.5%
Assessment Objectives (AO)	AO1: Take a pre-anesthetic history from patients relevant to anesthesia and surgery.	OSCE/ MCQ	
	AO2: Perform physical examination relevant to anesthesia and surgery.	OSCE	
	AO3: Choose relevant laboratory and diagnostic investigations as per patient indication	MCQ/Oral	
	AO4: Interpret Laboratory findings & Imaging relevant to anesthesia	MCQ	
	AO5: Select routine medications and anesthetic agents	MCQ	
Task 1.1.2. Determine the clinical status of a patient			3.5%
Assessment Objectives (AO)	AO1:-Score and stratify patient clinical status	MCQ/ SOE	
	AO2: Decide patient fitness for anesthesia	MCQ	
	AO3: Explain components of an anesthesia management plan based on pre-anesthetic assessment findings	MCQ/Oral	
Task 1.1.3. Obtain informed consent			3.0%
Assessment Objectives (AO)	AO1: Revise components of informed consent	MCQ/Oral	
	AO2: Provide appropriate and adequate information on the anesthetic management plan	OSCE	
	AO3: Check comprehension of patients, patient families, and other legal body	OSCE	
	AO4: Respect patients, patient families, and other legal body decisions and choices	MCQ	
Task 1.1.4. Prepare patients for anesthesia and surgery			2.5%
Assessment Objectives (AO)	AO1: Calculate intravenous fluid requirement based on patient conditions	MCQ	
	AO2: Differentiate intravenous fluids with their compositions	MCQ	
	AO3: Perform basic nursing procedures (e.g. catheterization, NGT insertion, IV)	OSCE	
	AO4: Prepare emergency drugs required for the provision of safe anesthesia	OSCE/ MCQ	
	AO5: Decide patient specific fasting guidelines	MCQ	
Task 1.1.5. Optimize patients for surgery and anesthesia			3.0%
Assessment Objectives (AO)	AO1: Select appropriate premedication drugs as per the health status of the surgical patient	Oral/MCQ	
	AO2: Demonstrate patient and family counseling and	Oral	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
	education		
	AO3: Justify preoperative cessation of smoking guidelines for Surgical patients	MCQ/ SOE	
	AO4: Decide preoperative drug discontinuation/ continuation that is relevant to anesthesia and surgery.	Oral/MCQ	
Competency 2: Prepare and utilize anesthesia machines, equipment, supply, and monitoring devices properly			**17.0%**
Task 1.2.1. Apply standard safety measures to manage perioperative hazards			2.0%
Assessment Objectives (AO)	AO1: Recognize the possible hazards that happen in Anesthesia practice	Oral/MCQ	
	AO2: Design strategies to minimize professional hazards of anesthesia including operating room pollution	MCQ	
	AO3: Apply the principle of infection prevention	OSCE/SOE	
	AO4: Apply measures to reduce position and procedure-related injuries	OSCE/ SOE	
	AO5: Apply measures to reduce surgical error and patient harm	OSCE/ SOE	
Task 1.2.2. Prepare & utilize medical gas sources/ supplies according to acceptable practice standards and protocols			2.5%
Assessment Objectives (AO)	AO1: Check the availability, functionality, and connection of medical gas sources	OSCE	
	AO2: Differentiate medical gas sources	MCQ/SOE	
	AO3: Identify types of medical gases	MCQ/SOE	
	AO4: Perform troubleshooting on pipeline, cylinders and anesthesia machine	OSCE	
Task 1.2.3. Prepare and utilize anesthesia machines safely			4.0%
Assessment Objectives (AO)	AO1: Recognize different parts of the anesthesia machine	MCQ/SOE	
	AO2: Perform routine anesthesia machine functionality test	OSCE	
	AO3: Operate Anesthesia machine to administer medical gases and volatile anesthetic agents	OSCE	
	AO4: Solve routine anesthesia machine malfunction	OSCE	
Task 1.2.4. Apply and utilize standard patient monitoring			3.0%
Assessment Objectives (AO)	AO1: Justify standards of patient monitoring	Oral/Written	
	AO2: Apply standards of patient monitoring devices	OSCE	
	AO3: Interpret common findings from standards patient monitoring (Pulseoxymetery & ETCO2)	OSCE/Written	
	AO4: Interpret 12 lead ECG	OSCE/Written	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Task 1.2.5. Check & prepare airway equipment			3.0%
Assessment Objectives (AO)	AO1: Assemble standard airway equipment	OSCE	
	AO2: Select airway equipment for different age groups and procedure	OSCE	
	AO3: Select airway & ancillary equipment used in the management of difficult airway	MCQ/OSCE	
Task 1.2.6. Utilize ancillary anesthetic equipment & materials			2.0%
Assessment Objectives (AO)	AO1: Select appropriate anesthetic breathing systems	MCQ/SOE	
	AO2: Utilize defibrillator for shockable cardiac arrest rhythms	OSCE	
Competency 3: Manage patients' airways using different modalities			12.0%
Task 1.3.1. Assess patients' airways			3.5%
Assessment Objectives (AO)	AO1: perform airway examination using different parameters	OSCE	
	AO2: Identify patients with difficult airways using relevant history	MCQ/SOE	
	AO3: Develop airway management plan	SOE/OSCE	
Task 1.3.2. Manage patients' airways using basic airway management techniques			4.0%
Assessment Objectives (AO)	AO1: Apply simple airway maneuvers	OSCE	
	AO2: Perform bag-mask ventilation	OSCE	
	AO3: Utilize airways (oral & nasopharyngeal)	OSCE	
Task 1.3.3. Manage patients' airways using advanced airway management modalities			4.5%
Assessment Objectives (AO)	AO1: Utilize supraglottic devices (SGDs) LMAs,	OSCE	
	AO2: Perform endotracheal intubation (nasal and oral)	OSCE	
	AO3: Apply other alternative measures between airway management attempts	MCQ/OSCE	
	AO4: Manage patients with difficult airways according to acceptable guidelines (DAS/ASA)	OSCE/SOE	
	AO5: Recognize the need for consultation for further airway management	MCQ/SOE	
	AO6: Perform extubation based on extubation criteria	OSCE	
	AO7: Manage common airway management complications		
Competency 4: Manage safe anesthesia			**22.5%**
Task 1.4.1. Manage anesthesia for obstetrics and gynecologic surgeries			4.0%
Assessment Objectives (AO)	AO1: Justify the effect of different anatomic changes of pregnancy on the intraoperative anesthetic management	MCQ/Oral	
	AO2: Justify the effect of different physiologic	MCQ/Oral	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
	changes of pregnancy on the intraoperative anesthetic management		
	AO3: Manage anesthesia for clients undergoing obstetrics surgery	MCQ/Oral	
	AO4: Manage anesthesia for patients undergoing gynecologic surgery	MCQ/Oral	
	AO5: Manage intraoperative complications during obstetrics and gynecologic surgery	MCQ/Oral	
	AO6: Perform neonatal resuscitation	OSCE	
	AO7: Manage anesthesia for high-risk pregnancy	MCQ	
	AO8: Manage anesthesia for a pregnant woman coming for non-obstetric surgery	MCQ/Oral	
Task 1.4.2. Manage anesthesia for pediatric and neonatal surgeries			2.0%
Assessment Objectives (AO)	AO1: Explain the anesthetic implication of the anatomic differences between children and adults	MCQ/Oral	
	AO2: Explain the anesthetic implication of physiological and psychological differences between children and adults	MCQ/Oral	
	AO3: Explain the anesthetic implication of the pharmacological differences between children and adults	MCQ/Oral	
	AO4: Manage intraoperative anesthesia for common pediatrics and neonatal emergency surgeries[1]	MCQ/Oral	
	AO5: Manage common intraoperative complications during pediatrics and neonatal emergency surgeries	MCQ/Oral	
	AO6: Manage anesthesia for pediatrics and neonate with common[2] comorbidities	MCQ/Oral	
Task 1.4.3. Manage anesthesia for geriatric patients undergoing surgeries			1.5%
Assessment Objectives (AO)	AO1: Apprise the implications of aging on anesthesia management	Oral	
	AO2: Select appropriate anesthetic drugs and techniques for geriatric patients undergoing surgery	MCQ/Oral	
	AO3: Provide intraoperative anesthesia care for geriatric patients	MCQ/Oral	
	AO5: Manage common intra-operative complications for geriatrics	Oral	
Task 1.4.4. Manage anesthesia for different general and urologic surgical procedures			2.5%
Assessment Objectives	AO1: Apply different components of ERAS for anesthesia management	MCQ/Oral	

[1] Common surgeries include: IHPS, Intussusception, MMC, Abdominal wall defects
[2] common comorbidities include: URTI, OSA and congenital anomalies

Competencies, tasks, and Objectives		Format + Methods	Emphasis
(AO)	AO2: Predict the effects of different anesthetic drugs on body systems	MCQ	
	AO3: Select appropriate anesthetic drugs and techniques for common general and urology surgery	MCQ/Oral	
	AO4: Manage common intra-operative complications during general and urology surgery	MCQ/Oral	
Task 1.4.5. Manage anesthesia for trauma, orthopedic surgeries and burn			2.5%
Assessment Objectives (AO)	AO1: Manage different types of shock	MCQ/Oral	
	AO2: Provide intra-operative anesthesia for trauma and orthopedic surgery	MCQ/Oral	
	AO3: Manage intraoperative complications during orthopedic and trauma patients	Oral	
	AO4: Apply principles of damage control resuscitative surgery	MCQ/Oral	
	AO5: Manage anesthesia for a patient with burn	MCQ	
	AO6: Administer fluid, electrolyte and blood products	MCQ/Oral	
Task 1.4.6. Manage anesthesia for neurosurgeries			1.5%
Assessment Objectives (AO)	AO1: Administer fluids for neurosurgeries	MCQ	
	AO2: Explain the effect of different neurosurgical positioning in anesthetic management	MCQ	
	AO3: Manage raised ICP	MCQ/Oral	
	AO4: Provide anesthesia care for neurosurgeries	MCQ/Oral	
	AO5: Manage intraoperative complications during neurosurgeries	MCQ/Oral	
	AO6: Provide anesthesia for head injury patients		
Task 1.4.7. Manage anesthesia for emergency thoracic surgeries			0.5%
Assessment Objectives (AO)	AO1: Select the appropriate anesthetic drugs and techniques for patients undergoing emergency thoracic surgery	MCQ/Oral	
	AO2: Differentiate common intraoperative complications during thoracic surgery	MCQ/Oral	
	AO3: Recognize the effects of positioning and anesthesia on respiratory mechanics	MCQ/Oral	
	AO4: Perform lung isolation using DLT & classic ETT	OSCE	
	AO5: Manage anesthesia for one lung ventilation	MCQ/Oral	
	AO6: Manage intraoperative complications during thoracic surgery	MCQ/Oral	
	AO4: Extubate after thoracic emergency surgeries	MCQ/Oral/ OSCE	
Task 1.4.8. Manage anesthesia for maxillofacial and ENT surgeries			1.0%
Assessment Objectives	AO1: Provide intra-operative anesthetic care for maxillofacial and ENT surgery	MCQ	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
(AO)	AO2: Manage challenges specific to maxillofacial and ENT surgeries	MCQ/Oral	
	AO3: Manage complications specific to maxillofacial and ENT surgeries	MCQ/Oral	
Task 1.4.9. Manage anesthesia for ophthalmic surgeries			0.5%
Assessment Objectives (AO)	AO1: Analyze the interaction between ophthalmic medications and anesthetic agents and adjuvants	MCQ/Oral	
	AO2: Manage raised IOP	MCQ/Oral	
	AO3: Provide intra-operative anesthesia care for ophthalmic surgery	MCQ	
	AO4: Manage intraoperative anesthesia of patients undergoing emergency ophthalmic surgery	MCQ/Oral	
	AO5: Manage intraoperative complications of patients undergoing ophthalmic surgery	MCQ/Oral	
Task 1.4.10. Manage anesthesia for day-case surgeries and remote anesthesia			0.5%
Assessment Objectives (AO)	AO1: Justify day-case patient selection protocols	Oral	
	AO2: Select appropriate anesthetic drugs and techniques for day-case patient management	MCQ/Oral	
	AO3: Outline discharge criteria for day-case surgical patients	MCQ/Oral	
	AO4: Manage peculiar challenges and safety risks associated with remote anesthesia	MCQ/Oral	
	AO5: Manage complications during remote anesthesia	MCQ/Oral	
Task 1.4.11. Manage regional anesthesia			3.5%
Assessment Objectives (AO)	AO1: Identify relevant anatomical landmarks for regional anesthesia	MCQ/Oral	
	AO2: Decide patient fitness for regional anesthesia (Indication/ contraindication)	MCQ/Oral	
	AO3: Prepare relevant equipment and material for regional nerve blocks	OSCE	
	AO4: Prepare the required volume, dosage, and concentrations of local anesthetics and adjuvants for regional anesthesia	OSCE	
	AO5: Perform spinal anesthesia technique	OSCE	
	AO6: Perform peripheral nerve blocks other than spinal anesthesia	OSCE	
	AO7: Examine the effectiveness of block	MCQ/OSCE	
	AO8: Manage intraoperative complications during regional anesthesia	MCQ/Oral	
Task 1.4.12. Manage anesthesia for patients with common co-existing disorders			2.5%

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Assessment Objectives (AO)	AO1: Justify the impact of comorbidities on anesthesia management and patient outcome	MCQ/Oral	
	AO2: Diagnose patients with common co-morbid conditions before anesthesia and surgery	MCQ/Oral	
	AO3: Optimize patients with common co-morbid conditions before anesthesia and surgery	MCQ/Oral	
	AO4: Select appropriate drugs and techniques for patients with common co-morbidity	MCQ/Oral	
	AO5: Manage intra-operative anesthesia care technique for patients with a common co-morbid condition	MCQ/Oral	
	AO6: Manage common complications of patients with common co-morbid conditions during anesthesia and surgery	MCQ/Oral	
Competency 5: Provide postoperative anesthetic care			6%
Task 1.5.1. Check and prepare the post-anesthesia care units and standards (PACU)			2%
Assessment Objectives (AO)	AO1: Prepare Post Anesthesia care unit for surgical patients	MCQ/Oral Exam	
	AO2: Recognize components of postoperative care	MCQ/Oral	
	AO3: Develop a postoperative management plan	MCQ	
	AO4: Critique the design and staffing of the PACU	MCQ	
	AO5: Decide patient admission and discharge to and from PACU	MCQ/Oral	
Task 1.5.2. Handover patient to respective unit postoperatively			2%
Assessment Objectives (AO)	AO1: Demonstrate appropriate transfer of care and responsibility during the handover of patients	OSCE	
	AO2: Assess the patient's status on arrival at PACU	MCQ/Oral	
	AO3: Provide postoperative care during patient transportation from OR	MCQ/Oral	
Task 1.5.3. Manage patients at PACU			2%
Assessment Objectives (AO)	AO1: Diagnose common postoperative complications of the surgical patient admitted to PACU	Oral	
	AO2: Monitor patient condition using different risk scoring and stratification methods	MCQ/SOE	
	AO3: Manage common postoperative complications	MCQ/SOE	
	AO4: Recognize the need for consultation	MCQ/SOE	
Competency 6: Manage pain for different patient groups			**3.5%**
Task 1.6.1. Assess acute and chronic pain			1.5%
	AO1: Take history for patients with pain.	MCQ/SOE	
	AO2: Perform physical examination for patients with pain.	MCQ/OSCE	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
	AO3: Rate pain using different pain rating scales	MSQ/SOE	
	AO4: Recognize the impact of pain on different body systems	MSQ/SOE	
Task 1.6.2. Manage acute pain			1.5%
Assessment Objectives (AO)	AO1: Recognize pain pathway	MCQ	
	AO2: Manage pain using WHO analgesia ladder	MCQ/SOE	
	AO3: Consult with other team members regarding pain management	MCQ/SOE	
	AO4: Demonstrate empathy for patients with pain	OSCE/SOE/ MCQ	
	AO5: Measure effectiveness of pain management regularly	MCQ/SOE	
	AO6: Recognize complications related to pain management modalities and drugs	MCQ/SOE	
	AO7: Manage complications related to pain management modalities and drugs	SOE/MCQ	
Task 1.6.3. Participate in the management of chronic and cancer pain			0.5%
Assessment Objectives (AO)	AO1: Recognize the role of psychological, social, rehabilitation, and other support services	MCQ/SOE	
	AO2: Identify common types of chronic pain syndromes	MCQ/SOE	
Competency 7: Engage in pre-hospital, emergency, and critical care services			**3.5%**
Task 1.7.1. Engage in the initial assessment and stabilization of critically ill patients during out-of-hospital care and transport			1.0%
Assessment Objectives (AO)	AO1: Recognize critically ill patients	MCQ/SOE/OSCE	
	AO2: Recognize risks associated with patient transfer (physical, psychological, and organizational)	MCQ/SOE	
	AO3: Monitor the condition of patients during transportation	OSCE	
	AO4: Apply different stabilization techniques during transport of a critically ill patient	MCQ/SOE	
	AO5: Apply special precautions during the transfer and intubation of trauma patients	OSCE/SOE	
	AO6: Recognize problems encountered during retrieval of victims from the scene	MCQ/SOE	
Task 1.7.2. Assess emergency and critically ill patients who need immediate attention			0.5%
Assessment Objectives (AO)	AO1: Perform triage using the national Early Warning score	MCQ/SOE	
	AO2: Recognize the goals of initial assessment and monitoring of critically ill patients	MCQ	
	AO3: Identify danger (warning) signs in critically ill	MCQ	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
	patients		
	AO4: Identify indications for endotracheal intubation of critically ill patients	MCQ/SOE	
Task 1.7.4. Engage in the management of emergency patients who need immediate attention at the emergency department			1.0%
Assessment Objectives (AO)	AO1: Apply principles of the primary survey	SOE/OSCE	
	AO2: Apply principles of a secondary survey during patient assessments	SOE/OSCE	
	AO3: Recognize special considerations during the management of pediatric and obstetric critically ill patients	SOE/OSCE	
	AO4: Recognize the need for a multi-disciplinary team during the management of emergency and critically ill patients	SOE	
Task 1.7.5. Engage in the management of critically ill patients who are admitted to the ICU			1.0%
Assessment Objectives (AO)	AO1: Identify common causes of respiratory failure	MCQ	
	AO1: Recognize patients' admission and discharge criteria to & from ICU	MCQ	
	AO2: Recognize indication and principles of mechanical ventilation in ICU	SOE/OSCE	
	AO3: Manage electrolyte and acid-base disturbance	MCQ/SOE	
	AO3: Manage immediate life-threatening conditions (ABCDE) according to priority	SOE/OSCE	
	AO4: Apply different settings of ventilation according to the indication	SOE/OSCE	
	AO5: Demonstrate compassion to patient and family while caring for critically ill patients	SOE/OSCE	
Competency 8: Perform cardiopulmonary resuscitation (CPR)			**5.5%**
Task 1.8.1. Recognize critically ill patients early before cardiac arrest happens			1.5%
Assessment Objectives (AO)	AO1: Prepare the setting to manage critically ill patients	OSCE/SOE	
	AO2: Assess critically ill patients regularly using ABCDE	OSCE/SOE	
	AO3: Differentiate patients who need urgent responses	MCQ/SOE	
	AO4: Recognize reversible causes of cardiac arrest	MCQ/SOE	
Task 1.8.2. Perform effective Basic Life Support			1.5%
Assessment Objectives (AO)	AO1: Recognize the importance of high-quality CPR and its impact on survival	MCQ	
	AO2: Manage Airway Obstruction	OSCE	

Competencies, tasks, and Objectives		Format + Methods	Emphasis
	AO3: Provide effective ventilation by using a barrier device	OSCE	
	AO4: Demonstrate effective chest compression	OSCE	
	AO5: Perform defibrillation using AED	OSCE	
Task 1.8.3. Perform effective Advanced Life Support			1.5%
Assessment Objectives (AO)	AO1: Apply advanced airway management modalities during life-threatening airway obstructions	OSCE	
	AO2: Mange patients with respiratory arrest using artificial ventilation	OSCE	
	AO3: Identify cardiac arrest rhythms	MCQ/SOE	
	AO4: Manage cardiac arrest using pharmacological and electrical interventions	OSCE	
	AO5: Perform ACLS for special population (e.g pregnant)		
Task 1.8.4. Provide post-resuscitation care for patients who achieve the return of spontaneous circulation (ROSC)			1.0%
Assessment Objectives (AO)	AO1: Recognize the role of the multi-disciplinary team during post-resuscitation care	MCQ/SOE	
	AO2: Provide essential post-resuscitation care	MCQ/SOE	
	AO1: Manage complications of cardiac arrest	MCQ/SOE	
	AO3: Maintain appropriate documentation throughout the peri-arrest period	OSCE	

Domain 2: Professionalism [8.0%]

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Competency 1: Uphold the anesthesia practice standard and ethics and be accountable to the public and the profession			**8.0%**
Task 2.1.1. Apply ethical and legal principles to anesthesia practice			2.0%
Assessment Objectives (AO)	AO1: Justify the applicability of ethical principles in anesthesia practice	MCQ /OSCE/SOE	
	AO2: Solve ethical dilemmas and uncertainties		
	AO3: Demonstrate ethical anesthesia practice during interactions with patients and their families/ attendants and colleagues.	OSCE	
	AO4: Implement strategies to resolve the ethical issue	MCQ/SOE	
	AO5: Recognize the role of law in anesthesia practice	MCQ/SOE	
	AO6: Support the rights, interests, and needs of patients and their family		
Task 2.1.2. Practice within the standard and scope of anesthesia practice			2.0%
Assessment Objectives (AO)	AO1: Apply codes of ethics in the practice of anesthesia per the national guideline	MCQ/SOE	
	AO2: Practice within the defined scope of professional requirements	OSCE/SOE	
	AO3: Recognize the consequence of breaching the defined scope of practice	OSCE/SOE	
	AO4: Comply with the standard of practice	OSCE/SOE	
Task 2.1.4. Communicate effectively with patient, patient family & multidisciplinary team			1.5%
Assessment Objectives (AO)	AO1: Communicate acute events and complications to the appropriate anesthesia and surgical teams	SOE/ MCQ	
	AO2: Recognize the communication model and process	MCQ/SOE	
	AO3: Implement safe, effective, and consistent communication with a multidisciplinary team	SOE/OSCE	
	AO4: Implement safe, effective, and consistent communication with a patient	SOE/MCQ	
Task 2.1.5. Produce and maintain complete and accurate anesthesia documentation			2.5%
Assessment Objectives (AO)	AO1: Recognize the need for appropriate anesthesia documentation	MCQ/SOE	
	AO2: Maintain proper perioperative anesthesia documentation	OSCE	

Domain 3: Education, research and evidence-based practice [2.5%]

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Competency 1: Demonstrate commitment to excellence in anesthesia practice through the application of evidence to practice and research activities			**2.5%**
Task 3.1.1. Conduct research relevant to peri-operative medicine and critical care			1.0%
Assessment Objectives (AO)	AO1: Justify the application of research in anesthesia practice	Oral	
	AO2: Distinguish the commonly used research designs	MCQ/Oral	
	AO3: Determine sample & sampling methods	MCQ/Oral	
	AO4: Design research objectives	MCQ/Oral	
	AO5: Justify Ethical principles in research	MCQ/Oral	
Task 3.1.2. Apply the principles of evidence-based practice			0.5%
Assessment Objectives (AO)	AO1: Recognize the need for evidence-based practice	MCQ/Oral	
	AO2: Recommend credible online resources for anesthesia practice	MCQ/Oral	
	AO3: Compare different sources of information	Oral	
	AO4: Appraise published articles critically	Oral	
	AO5: Utilize critically appraised literature	Oral	
Task 3.1.3. Conduct a clinical audit and need assessment			1.0%
Assessment Objectives (AO)	AO1: Justify the relevance of clinical audit in anesthesia practice	MCQ/Oral	
	AO2: Outline audit cycle	MCQ/Oral	
	AO3: Set performance standards	MCQ/Oral	
	AO4: Choose appropriate audit methodologies	MCQ/Oral	
	AO5: Outline dissemination strategies of clinical audit findings	MCQ/Oral	

Domain 4: Leadership and management [X%]

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Competency 1: Manage anesthesia service in a health facility			**3.0%**
Task 4.1.1. Plan anesthesia service activities			0.5%
Assessment Objectives (AO)	AO1: Assess workplace, health, and safety for patients and staff (eg: AFAT)	SOE	
	AO2: Develop anesthesia service work plan	OSCE/SOE	
	AO3: Prioritize short- and long-term plans for the service in consultation with multidisciplinary team members	SOE	
Task 4.1.2. Implement anesthesia service activities			0.5%
Assessment Objectives (AO)	AO1: Utilize appropriate technology and standardized practices that support safe practice	OSCE	
	AO2: Conduct appropriate and corrective measures to solve problems encountered	OSCE	
	AO3: Lead anesthesia team	MCQ/SOE	
	AO4: Manage conflicts with patients and multidisciplinary team	MCQ/SOE	
Task 4.1.3. Monitor the overall anesthesia service plan in a facility			0.5%
Assessment Objectives (AO)	AO1: Monitor resource utilization as per the plan and organizational policy	MCQ	
	AO2: Examine the quality of service using key performance indicators	SOE	
Task 4.1.4. Report anesthesia service deliveries (including risks and incidents)			1.0%
Assessment Objectives (AO)	AO1: Develop anesthesia service reports	SOE/MCQ	
	AO2: Submit reports regularly	SOE	
	AO3: Utilize report findings to improve anesthesia practice	SOE/MCQ	
Task 4.1.5. Adapt and implement a quality improvement and assurance framework for quality anesthesia service delivery			0.5%
Assessment Objectives (AO)	AO1: Identify anesthesia service standards	MCQ	
	AO2: Construct strategies for the delivery of high-quality anesthesia service.	MCQ	
	AO3: Conduct regular discussions with surgical team members to incorporate necessary changes into strategies for continuous improvement.	OSCE	

Domain 5: Health promotion and disease prevention [1.5%]

Competencies, tasks, and Objectives		Format + Methods	Emphasis
Competency 1: Asses and diagnose community health problems			**0.5%**
Task 5.1.1. **Asses and diagnose community health problems**			0.5%
Assessment Objectives (AO)	AO1: Assess community health problems	MCQ	
	AO2: Prioritize community health problems in relevance to anesthesia	MCQ	
	AO3: Recognize national priority diseases and control program	MCQ/SOE	
	AO4: Conduct community needs assessment to provide surgical, anesthesia, and critical care	MCQ/SOE	
Competency 2: Plan and implement health promotion and disease prevention interventions			**1.0%**
Task 5.2.1. Create community awareness on topics relevant to anesthesia practice (including community education)			0.5%
Assessment Objectives (AO)	AO1: Provide health education in various contexts/settings	MCQ/SOE	
	A02: Create awareness of the anesthesia profession	SOE	
	AO3: Promote healthy lifestyles (diet, exercise) and behaviors for risk reduction	MCQ/SOE	
Task 5.2.2. Implement infection prevention and control protocols			0.5%
Assessment Objectives (AO)	AO1: Apply infection prevention and control strategies	MCQ/SOE	
	AO2: Create awareness of infection prevention and control (IPC) measures	MCQ/SOE	

Integrated sample OSCE blueprint

Area	# of stations	Assess, optimize, and prepare patients **[29%]**			Prepare & utilize machines and equipment **[14%]**		C4: Manage safe anesthesia **[57%]**		Total emphasis
		Hx taking & consent (12%)	Examination (6%)	Optimization/ prep (10%)	Machine (8%)	Equipment + drug (6%)	CDMS (8%)	Procedure (49%)	
Obstetrics & gynecologic anesthesia	**3**	Hx & consent (4%)	AW exam (3%)	-	-	-	-	Newborn resus (7%)	**14%**
Pediatric & neonatal anesthesia	**4**	Hx & assent (4%)	-	-	Mapleson A-E identify (4%)	Adrenaline prep (3%)	-	ETTI (7%)	**18%**
Geriatric anesthesia	**2**	-	-	-		ECG interp. (3%)	Mx plan (4%)	-	**7%**
General & urologic surgery anesthesia	**2**	-	-	-	Machine check (4%)		-	LMA (7%)	**11%**
Trauma & orthopedic anesthesia	**2**	-	-	ATLS (5%)	-	-	-	PNB (7%)	**12%**
Neurosurgery anesthesia	**1**	-	-	-	-	-	-	ETTI (7%)	**7%**
Thoracic emergency anesthesia	**2**		Chest (3%)	-	-	-	-	DLT (7%)	**10%**
Maxillofacial and ENT anesthesia	**2**	Pain Hx (4%)		-	-	-	-	-	**4%**
Ophthalmic anesthesia	**1**	-	-	CPR (6%)	-	-	-	-	**6%**
Regional anesthesia	**1**	-	-	-	-	-	-	SA (7%)	**7%**
Co-existing disorders	**1**	-	-	-	-	-	Mx plan (4%)		**4%**
# of stations	**20**	**3**	**2**	**2**	**2**	**2**	**2**	**7**	**100%**