CAMRT ACTRM

National Certification Exam Blueprint

Effective:
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RADIOLOGICAL TECHNOLOGY

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Purpose and Use of the Examination Blueprint

The examination blueprint for the CAMRT national certification examination provides an outline of the content to be covered and the expected number of questions per competency category.

The exam is structured around the MRT Professional Roles, described in the *National Competency profile for Entry-Level MRTs in Canada (March 2020),* as well as around the key competencies in the case of the Clinical Expert Role. The examination blueprints are used in conjunction with the *2020 National Competency Profile (NCP) for Entry-Level MRTs in Canada* and Companion documents. The NCP provides additional information on the enabling competencies that support the key examinable competencies. This blueprint must be used in conjunction with the March 2020 profile, found here: https://www.camrt.ca/certification-4/current-competency-profiles/

For ease of use, a full list of examinable competencies is also included in this document.

In addition, secondary weightings were established to provide additional guidance to examination candidates in terms of expected frequency of specific procedures, pathologies and/or body systems. These areas were given a weighting of High, Medium or Low. While there are no specific numeric weightings for the secondary weightings (these serve as a guide only), these weightings are designed to provide additional guidance to examination candidates to direct their efforts in preparation for the examination. For example – examination candidates can expect clinical procedures with a high weighting to appear more frequently on the exam than clinical procedures with a medium or low weighting.

Exam Structure and Format

- Competency-based exam. Knowledge taxonomy:
    - Minimum 80% of questions will be application/critical thinking.
    - Maximum 20% of questions will be knowledge-based.
- 185 multiple choice questions.
- Computer-based delivery.
- Candidates are given four (4) hours to complete the exam.

For more details on exam preparation, please view the CAMRT exam preparation guides: https://www.camrt.ca/certification-4/graduates-of-canadian-accredited-programs/exam-preparation-resources/exam-preparation-guide/

Radiological Technology Examination Blueprint and Content Weighting

Competency Category	Minimum	Maximum	# of questions (range)
1. Professional	**5%**	**10%**	9-19
2. Communicator			
3. Collaborator			
4. Care Provider	**10%**	**20%**	19-37
5. Leader	**0%**	**0%**	0
6. Scholarly Practitioner	**0%**	**0%**	0
7. Clinical Expert *(further broken down below)*	**70%**	**85%**	129-157
RTR.1. Integrate safe work principles and procedures into practice.	*9%*	*14%*	17-26
RTR.2. Manage a variety of imaging systems.	*5%*	*10%*	9-19
RTR.3. Integrate clinical principles into practice.	*27%*	*32%*	50-59
RTR.4 Perform diagnostic and therapeutic procedures.			
RTR.5. Administer substances required for clinical procedures.			
RTR.6. Analyze image and data quality and respond.	*27%*	*32%*	50-59

Secondary Weightings – Radiological Technology

Common Pathologies, Anomalies & Conditions	
Category	**Weighting**
Respiratory System	High
Skeletal (Fractures)	High
Skeletal (Others)	High
Cardiovascular System	Medium
Gastrointestinal System	Medium
General	Medium
Neurological System	Medium
Endocrine System	Low
Hematopoietic System	Low
Reproductive System	Low
Urinary System	Low

Clinical Procedures	
Category	**Weighting**
General Radiography: Respiratory System	High
General Radiography: Skeletal System	High
General Radiography: Digestive System	Medium
General Radiography: Urinary System	Medium
Computed Tomography	Medium
Bone Mineral Densitometry	Low
Fluoroscopy	Low
Interventional Radiography	Low
Mammography	Low

Examinable Competencies

The following table is an excerpt from the *National Competency profile for Entry-Level MRTs in Canada (March 2020).* This lists all competencies that are examinable on the national certification exam.

1	**PROFESSIONAL**
1.1	**Adhere to legal and regulatory requirements.**
1.1.2	Comply with federal and provincial legislation and regulations.
1.1.4	Maintain privacy and confidentiality in accordance with legislation.
1.1.5	Ensure ongoing informed consent to procedures.
1.2	**Apply ethical principles.**
1.2.1	Practice within provincial regulatory or national association code of ethics.
1.2.2	Practice within limits of professional knowledge, skills and judgement.
1.2.3	Respect the dignity, privacy and autonomy of the patient.
1.2.4	Maintain professional boundaries.
1.3	**Demonstrate professional integrity.**
1.3.3	Use professional judgement and critical thinking to reach decisions.
1.5	**Demonstrate social responsibility and cultural awareness.**
1.5.1	Provide care in an unbiased manner.
1.5.2	Demonstrate sensitivity to the diversity of individuals.
1.5.3	Provide care in a culturally safe manner.
2	**COMMUNICATOR**
2.1	**Establish and maintain effective communication.**
2.1.1	Establish trust with patients and their families.
2.1.5	Explain complex and technical matters related to medical radiation technology to the level of the respondent's understanding.
2.1.6	Provide appropriate information about procedures to patients and support persons and verify understanding.
2.1.7	Adapt communication strategies to enhance interaction with patients and support persons.
2.1.8	Respond to questions from patients and support persons or direct them to appropriate resources.

2.2	**Obtain, evaluate and share information.**
2.2.2	Identify clinically relevant details and respond.
2.2.3	Provide accurate and timely updates to the care team, as appropriate.
2.2.4	Maintain accurate and complete written and electronic documentation.
2.2.5	Advise patients of necessary pre- and post-procedure care instructions.
3	**COLLABORATOR**
3.1	**Employ effective team processes to coordinate patient care.**
3.1.1	Demonstrate understanding of the roles of healthcare team members.
3.1.2	Share MRT expertise with other healthcare professionals.
3.1.5	Ensure appropriate transfer of care.
4	**CARE PROVIDER**
4.1	**Practice in a manner that contributes to safe care.**
4.1.1	Verify patient identity.
4.1.2	Transport and transfer patients safely.
4.1.3	Use immobilization devices, as appropriate.
4.1.4	Ensure proper function of assistive devices and equipment provided by the facility.
4.1.5	Recognize and respond to medical emergencies.
4.2	**Conduct relevant patient assessment in partnership with patients and families.**
4.2.1	Review clinical history provided relative to ordered procedure and address discrepancies.
4.2.2	Verify appropriateness of the procedure.
4.2.3	Assess patient for contraindications to procedure and respond.
4.2.4	Assess and respond to patient condition.
4.3	**Provide compassionate care for patient's physiological, cognitive and psychological needs.**
4.3.1	Monitor patient throughout procedure and respond as necessary.
4.3.2	Adapt positioning and/or protocol in response to patient condition and clinical environment.
4.3.3	Enhance patient comfort.
4.3.4	Provide patient interventions, as appropriate**.**

4.3.5	Recognize and adapt to individual patient needs.
4.4	**Comply with appropriate infection prevention and control standards and/or regulations.**
4.4.1	Employ routine practices and additional precautions for infection prevention and control.
4.4.2	Employ appropriate procedure for patients with compromised immunity.
4.4.3	Apply standardized procedures for handling and disposing of sharps and contaminated and biohazardous materials.
4.5	**Provide education and support to patients and families/support persons.**
4.5.1	Provide education related to procedure, risks and safe practices.
4.5.2	Provide an open and secure environment in which the patient can confide.
4.5.3	Provide education regarding management of expected treatment/procedure side effects.
RTR	**CLINICAL EXPERT – Radiological Technology**
RTR.1	**Integrate safe work principles and procedures into practice.**
RTR.1.1	Use protective devices, equipment, and apparel.
RTR.1.2	Use proper body mechanics.
RTR.1.3	Ensure a safe working environment.
RTR.1.4	Adapt safety practices according to equipment type.
RTR.1.5	Apply ALARA principle.
RTR.1.6	Apply knowledge of radiation effects and risks.
RTR.1.7	Monitor personal radiation exposure and respond.
RTR.1.8	Recognize and respond to facility emergencies.
RTR.1.9	Assess integrity of protective apparel and devices.
RTR.2	**Manage a variety of imaging systems.**
RTR.2.1	Apply knowledge of radiation physics.
RTR.2.2	Apply knowledge of the operational components of imaging systems to optimize images and data.
RTR.2.3	Use accessory equipment.
RTR.2.4	Operate imaging systems.
RTR.2.5	Use digital networking and archiving system.
RTR.2.6	Recognize and respond to emergencies involving equipment.

RTR.2.7	Participate in a repeat/reject analysis program.
RTR.2.8	Assess performance of imaging systems and respond
RTR.3	**Integrate clinical principles into practice.**
RTR.3.1	Apply knowledge of cross-sectional/relational anatomy and physiology as they relate to clinical procedures.
RTR.3.2	Apply knowledge of pathophysiology as it relates to clinical procedures.
RTR.3.3	Apply knowledge of imaging procedures and protocols in various clinical environments.
RTR.3.4	Apply knowledge of other imaging and therapeutic modalities.
RTR.4	**Perform diagnostic and therapeutic procedures.**
RTR.4.1	Plan imaging procedure using relevant clinical data.
RTR.4.2	Prepare patient.
RTR.4.3	Position patient for imaging procedures using anatomical landmarks and knowledge of relational anatomy.
RTR.4.4	Align imaging system to demonstrate required anatomical structure(s).
RTR.4.5	Adapt imaging protocol in response to findings on the image.
RTR.4.6	Select and optimize imaging parameters.
RTR.4.7	Perform procedures in operating room and mobile (point of care) environments.
RTR.4.8	Verify acquired data is accurate and complete.
RTR.5	**Administer substances required for clinical procedures.**
RTR.5.1	Perform venipuncture.
RTR.5.2	Prepare pharmaceutical agents.
RTR.5.3	Apply knowledge of the effects of pharmaceutical agents.
RTR.5.4	Administer pharmaceuticals via appropriate route.
RTR.5.5	Prepare contrast agents.
RTR.5.6	Apply knowledge of the effects of contrast agents.
RTR.5.7	Administer contrast agents via appropriate route.
RTR.5.8	Recognize and respond to adverse reactions.
RTR.5.9	Perform rectal tube insertion.
RTR.5.10	Prepare sterile trays.

RTR.6	**Analyze image and data quality and respond.**
RTR.6.1	Apply knowledge of principles affecting image quality.
RTR.6.2	Differentiate anatomical structures on images.
RTR.6.3	Evaluate images for normal results and variants.
RTR.6.4	Recognize common pathologies, anomalies, and conditions.
RTR.6.5	Ensure accuracy of markers and annotation.
RTR.6.6	Evaluate images for artifacts and respond.
RTR.6.7	Evaluate technical factors in image quality.
RTR.6.8	Determine if further images are required.
RTR.6.9	Perform post-acquisition processing.