



CANADA'S TESTING COMPANY
ASSESSMENT STRATEGIES INC.

LA SOCIÉTÉ SPÉCIALISTE DES EXAMENS AU CANADA
STRATÉGIES EN ÉVALUATION INC.

**Canadian Practical Nurse Examination (CPNRE)
Item Writing Information Package:
Multiple Choice Questions**

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1. Introduction

Every year, subject matter experts (SMEs) participate in item writing activities for the Canadian Practical Nurse Registration Examination (CPNRE). The activities within the week-long session alternate between item-writing and group review of the items written.

This document provides information to guide and facilitate the item writing process. It is essential that item writers read this kit in advance of the session in order to be familiar with the item-writing process.

Before beginning any item-writing activity, SMEs are asked to read and agree to the *security measures* which are described in Appendix A. They are asked to sign the security measures form when attending the item-writing session.

2. The Multiple-Choice Question

All the questions to be developed in the item writing session will be multiple-choice (MC) format. Each MC question is composed of two distinct elements: the stem and the options.

- The stem is the introductory part of the question that presents the examinee with a question or problem.
- The options are the alternatives (e.g., words, statements, numbers) from which the examinee is to select the *correct* or *best* answer to the question or problem posed in the stem. Each question has four options: the correct response and three *distracters* that are *plausible* but *incorrect* (or less adequate) options intended to distract the examinee who is uncertain of the correct response.

The questions developed in the item writing sessions may be *independent questions* (i.e., stand-alone questions which are not specifically connected with any other text or questions), or *case questions* (i.e., a brief introductory text accompanied by a set of related questions).

3. The Question Format

The questions are written to assess the knowledge, skills, abilities, attitudes and judgments (competencies) expected of an entry-level practical nurse. The sample of competencies tested relate directly to safe, ethical and effective practice.

CPNRE questions may be developed to test the cognitive domain. There are three cognitive domain levels: Knowledge/Comprehension (K/C), Application (AP) and Critical Thinking (CT). The three levels of cognitive ability are defined below. Refer to Appendix B for sample questions.

3.1 Cognitive Domain

Knowledge/Comprehension (K/C)

This level refers to the ability to recall previously learned material and to understand its meaning. It includes such cognitive abilities as knowing and understanding definitions, facts, principles and interpreting data (e.g., knowing the effects of certain drugs, interpreting data appearing on a client's chart).

Application (AP)

This level refers to the ability to apply knowledge and learning to new or practical situations. It includes applying rules, methods, principles and nursing theories in providing care to clients (e.g., applying principles of therapeutic communication to the nursing care of clients).

Critical Thinking (CT)

The third level of the taxonomy deals with higher-level thinking processes. It includes the ability to judge the relevance of data, to deal with abstractions and to solve nursing problems (e.g., identifying priorities of care, evaluating the effectiveness of nursing actions). The nurse should be able to identify cause-and-effect relationships, distinguish between relevant and irrelevant data, formulate valid conclusions and make judgments concerning the needs of clients.

4. Developing Multiple-Choice Questions

The five steps to follow when developing a multiple-choice question are: (1) Selecting the competency, (2) Creating the stem, (3) Writing the correct response, (4) Formulating the distracters and (5) Developing rationales. Refer to Appendix C for sample independent questions and Appendix D for sample case-based questions.

4.1 Selecting a Competency

- Read and understand the competency thoroughly.
- Determine the parameters to be tested by the question using the selected competency (e.g., age, gender, level of cognitive ability/taxonomy).
- If you do not understand the meaning of a competency, consult the other item writers or the facilitator.

4.2 Creating the Stem

- Present the stem as a complete sentence.
- Put as much of the wording as possible in the stem, rather than in the options.
- Ensure that the stem is clear and concise. It should provide all of the necessary information to enable examinees to select an option, but should not contain information that is not reflected in the options.
- State the stem in a positive form (i.e., avoid using “not” or “except”).

4.3 Writing the Correct Response

- Cite two current reference texts/articles (published within the past 5 years) which support the correct response. If it is difficult to locate a reference that relates directly to the content of a particular question, ensure that the chosen reference supports the general principle addressed in the question. References should be well-known and easily

accessible by examinees.

- Provide a response that experts are likely to agree on as the best answer. Do not choose a correct response that is contradicted by other reference sources.

4.4 Formulating the Distracters

- Anticipate the types of errors less proficient examinees are likely to make.
- Ensure that all of the distracters are plausible and homogeneous (e.g., if the stem asks for an intervention, ensure that each option is presented as an intervention).
- Omit an important feature of the correct response, or introduce an incorrect or irrelevant feature.

4.5 Developing Rationales

- For each response option, a rationale must be developed which justifies the correct answer and also explains why each distracter is incorrect. This will minimize the likelihood of creating an inaccurate or ambiguous question.
- Ensure that the rationale indicates why an option is correct or incorrect. Your explanation does not need to be exhaustive. See Appendix C for examples.
- Write the rationale for each option in point form.

4.6 Developing a case scenario

When developing case-based questions, a case scenario needs to be developed first. Once a case scenario is developed, follow the five steps to developing multiple choice questions as outlined above.

- The case scenario presents the information (or sets the stage) for a series of multiple-choice questions (3 to 5) that will be created based on the case-based scenario.
- In the case scenario, the person's age and gender are described and details are presented to elaborate on a nursing situation.
- Provide all of the necessary information but do not include extraneous information that may confuse the examinee.

5. Reviewing Questions with the Group

The purpose of this activity is to verify the quality and accuracy of the questions that are developed. Each question is presented to the item-writing group for constructive comments and suggestions. When the group has agreed that a question meets guidelines for examination questions, the question is approved. The following questions need to be asked when reviewing each question written.

- Does the question measure the competency and reflect the parameters?
- Is the question at the appropriate level of difficulty (i.e., for the entry-level practical nurse)?
- Are the options comparable in length?
- Are the options grammatically consistent with the stem?
- Are key words or phrases repeated in each option?
- Is there any information in the stem of the question or in the case-based text that could guide the examinee in correctly answering the question?
- Is the question relatively unfamiliar to a specified group and consequently putting some examinees at a disadvantage?
- Is the question inadvertently promoting stereotypes about race, national or ethnic origin, colour, religion, gender, age or disability?

6. Additional Steps for Creating Quality Questions

In addition to the questions outlined above, the following points need to be considered when writing the question:

- Write the question at the specified level for the cognitive domain (i.e., K/C, AP, CT).
- Avoid textbook language and technical jargon. Use simple language.
- Phrase questions in the third person (e.g., What should **the practical nurse** recommend?) because the use of the second person (e.g., What would **you** recommend?) introduces an element of subjectivity into the question.
- Ensure consistency in spelling by consulting the latest editions of *Gage's New Collegiate Dictionary* and *Taber's Cyclopedic Medical Dictionary*. If a word does not appear in either of these dictionaries, an accepted current publication may be used as a reference for spelling.
- Express units of measurement according to the International System of Units (SI) (e.g., kilograms not pounds).
- Spell out - numbers below ten, any number that begins a sentence and common fractions.

- Express as a number - numbers above ten, numbers that immediately precede a unit of measurement (e.g., 5 mg), numbers that represent statistical or mathematical functions, fractional or decimal quantities, percentages, ratios, and percentiles and quartiles (e.g., 16:1, 5th percentile), numbers that represent time, dates, ages, scores and points on a scale (e.g., 2 weeks ago, 3 years old, 4 out of 7).
- Avoid the use of abbreviations, except for standard ones (e.g., mm, p.r.n., I.V.). A list of Assessment Strategies' accepted abbreviations will be available at the item-writing session. When using acronyms, write the term in full, followed by the acronym in parentheses, e.g., patient-controlled analgesic (PCA). Subsequent citations of the term within a question need only include the acronym; e.g., PCA.
- When citing a medication, use the generic name of the drug in lowercase, followed by the trade name, capitalized and in parentheses; e.g., furosemide (Lasix). Subsequent citations of the same medication within a question need only include the generic name of the drug in lowercase. To ensure that the administration route described in the question corresponds with the medication chosen, consult the latest edition of the *Compendium of Pharmaceuticals and Specialties (CPS)*.

APPENDIX A

Security Measures

In order to protect the sizeable capital investment in the examinations which may include advance preparation of exam materials for future years, the persons involved in the examination development process undertake to maintain all information regarding the examinations gathered at any time, as confidential information. Without limiting the generality of this undertaking, these persons specifically agree:

- a. To hold confidential any information obtained, including oral discussions, regarding the development, administration, or content of the examination.
- b. To require any person engaged in the examination development or its administration or who have access to the contents of the examination, to hold confidential such information.
- c. To refrain from soliciting or engaging any person, including former employees or contract workers of either party or anyone in possession of confidential information, in any capacity that would cause a breach of confidentiality.
- d. To discourage at all times anyone planning to breach such confidentiality and to provide written notice to the CNA staff in charge of examination confidentiality of any occasion where such a breach of confidentiality has happened or is likely to happen.

It is understood and agreed that breaches of confidentiality may include directly or indirectly disclosing the confidential information. Indirect disclosure includes but is not limited to providing courses, in-services, writing articles or giving talks based on confidential information to competitors, students, researchers, consultants or any other organization.

The word “person” in this appendix shall include any employee, volunteer, committee member, invigilator, representative, consultant, consignee, organization, contract worker, company over which the party has direct or indirect authority or control.

All examination materials and information should be considered Confidential or Secret, although they may not necessarily be identified as such.

All persons working on any phase of the development or administration of examinations are expected to honour these security measures. To confirm this, all persons will be asked to sign an agreement acknowledging that: (a) the provisions used by Assessment Strategies to protect the security of examinations, examination materials and related information have been explained to them; (b) they understand these provisions; and (c) they agree to abide by them.

APPENDIX B

Sample Questions Testing Different Levels of Cognitive Ability

The following 3 questions demonstrate how the same content or idea can be measured at different levels of cognitive ability.

Example of a Knowledge/Comprehension (K/C) Question

What clinical manifestation should indicate to the practical nurse that a client is in the early stage of pyrexia?

1. Increased thirst
2. **Shivering ***
3. Flushed, warm skin
4. Decreased pulse and respiratory rates

*In this question, the examinee would be required to use the cognitive ability of Knowledge/Comprehension. That is, the examinee would be required to **recall** that shivering is a heat conservation mechanism common to the early stages of pyrexia.*

* **Indicates the correct response**

Example of an Application (AP) Question

What should the practical nurse do initially for an elderly client who is suddenly shivering, reporting chills and has a temperature of 38.2 °C?

1. **Cover the client with a blanket. ***
2. Change the client's clothing and bed linen.
3. Begin oral hygiene procedures.
4. Provide cool, circulating air.

*In this question, the examinee would be required to use the cognitive ability of Application. That is, the examinee would be required to **apply**, from among the general measures to counteract pyrexia, those that are appropriate at this particular stage (e.g., onset). The examinee would also be required to **apply** knowledge of measures that should be taken initially given that an elderly person can become debilitated very rapidly from the effects of a fever.*

Example of a Critical Thinking (CT) Question

At 23:30, Mrs. Smith telephones the Emergency Department because her 5-month-old daughter has had an axillary temperature of 39.5 °C since 08:00, is vomiting and is very sleepy. What should the nurse do?

1. Suggest to Mrs. Smith that she give her daughter a tepid bath and administer acetaminophen (Temptra).
2. Ask Mrs. Smith to take her daughter's temperature again and call back immediately.
3. Suggest to Mrs. Smith that she withhold dairy products and give her daughter a bottle of boiled water.
4. **Ask Mrs. Smith to withhold medication and come to the emergency department right away. ***

*In this question, the examinee would be required to use the cognitive ability of Critical Thinking. That is, the examinee would be required to **solve a nursing situation** while considering the relationship between the client's age and manifestations that have not been directly observed by the practical nurse. The examinee would have to make a **judgment** about the seriousness of this situation (e.g., possibility of meningitis) and determine the most appropriate intervention.*

APPENDIX C

Sample Questions and Rationales: Independent Questions

Cognitive Level: Knowledge/Comprehension

What device should the practical nurse use when administering an oral liquid medication to a 6-month-old infant?

1. A plastic teaspoon
2. **A disposable syringe ***
3. A disposable dropper
4. A plastic medication cup

RATIONALES

- Incorrect: Less accuracy and possibility of breakage of the spoon.
Correct: Provides a reliable measure and a convenient means of transport.
Incorrect: Unreliable for liquids and volume of the drop varies with viscosity.
Incorrect: Less accuracy and a child of 6 months is likely not accustomed to drinking from a cup.

REFERENCE

Whaley, L. F., & Wong, D. L. (1993). *Whaley and Wong's essentials of pediatric nursing* (4th ed.). St. Louis, MO: Mosby, pp. 671-674.

Jackson, D. B., & Saunders, R. B. (1993). *Child health nursing: A comprehensive approach to the care of children and their families*. Philadelphia: J. B. Lippincott, p. 567.

Cognitive Level: Application

What should the practical nurse do to facilitate a client's acceptance of an altered body image following a total laryngectomy and tracheostomy?

1. **Emphasize what the client can do within the limitations resulting from the treatment.** *
2. Encourage the client's family to refrain from discussing the tracheostomy while visiting.
3. Demonstrate a sympathetic approach when providing the client's tracheostomy care.
4. Reassure the client that following discharge there can be a complete return to pre-hospitalization activities.

RATIONALES

- Correct: Will help the person feel more positive and increase the acceptance of an altered body image.
- Incorrect: Could be an example of denial; the practical nurse should not actively encourage the use of denial.
- Incorrect: Client may feel a sense of pity from the practical nurse resulting in the client having a diminished self-image.
- Incorrect: With impaired speech, the client may not be able to have a complete return to all pre-hospitalization activities.

REFERENCE

- Baird, S. B., McCorkle, R., & Grant, M. (1991). *Cancer nursing: A comprehensive textbook*. Philadelphia, Saunders, pp. 580-581, 826-827.
- Patrick, M. L., Woods, S. L., Craven, R. F., Rokosky, J. S., & Bruno, P. M. (1991). *Medical-surgical nursing: Pathophysiological concepts* (2nd ed.). Philadelphia: Lippincott, pp. 556-562.

Cognitive Level: Critical Thinking

The practical nurse returns from break to find that the status of two clients has changed. The practical nurse now needs to assess their vital signs every 15 minutes and administer several stat. medications. In addition, a third client requires insulin. In evaluating this situation, what should the practical nurse conclude?

1. **The present workload is unrealistic for the practical nurse to manage. ***
2. The practical nurse does not have enough knowledge to manage this situation.
3. The practical nurse needs to reprioritize the care plans for each of the clients.
4. The practical nurse should administer the insulin first to free time to attend to the clients who are acutely ill.

RATIONALES

- Correct: Unrealistic to expect one practical nurse to simultaneously assess q.15 minute vital signs and administer stat. medications to two acutely ill clients, as well as administer insulin to a third client.
- Incorrect: This is a workload issue, not a knowledge issue.
- Incorrect: Reprioritizing will not lead to attainment of therapeutic goals.
- Incorrect: Indicates poor priority-setting: acutely ill clients will be neglected.

REFERENCE

- Baumgart, A. J. (1992). *Canadian nursing faces the future* (2nd ed.). Scarborough, CA: Mosby Year Book, p. 234.
- Potter, P. A., & Perry, A. G. (1993). *Fundamentals of nursing: Concepts, process & practice*. St. Louis, MO: Mosby YearBook, pp. 1438-1440.

APPENDIX D***Sample Questions and Rationales: Case-Based*****CASE 1**

Mr. Robert Lowry, 82 years old, collapses at home. He is rushed to the community hospital where it is determined that he has suffered a cerebrovascular accident. Mrs. Lowry tells the practical nurse that prior to this incident, her husband had been taking hydrochlorothiazide (Hydrodiuril) to control his hypertension.

QUESTIONS 1 to 5 refer to this case.

Cognitive Level: Knowledge/Comprehension

1. What assessments should the practical nurse make initially to determine Mr. Lowry's level of consciousness?
 1. Visual fields
 2. Auditory acuity
 3. Response to cold
 - 4. Responses to painful stimuli ***

RATIONALES

- Incorrect: This reflects the locale of the stroke but is not useful for determining level of consciousness.
- Incorrect: This reflects the client's ability to hear but is unrelated to the client's level of consciousness.
- Incorrect: This is included in sensory evaluation but is not an initial assessment of level of consciousness.
- Correct: This is a component of the Glasgow Coma Scale - a practical means of determining the level of consciousness.

REFERENCE

- Bears, P. G., & Myers, J. L. (1990). *Principles of adult health nursing*. St. Louis, MO: Mosby Year Book.
- Smeltzer, S. C., & Bare, B. G. (1992). *Brunner and Suddarth's textbook of medical-surgical nursing* (7th Ed.). Philadelphia: Lippincott, pp. 1655, 1733.

Cognitive Level: Application

2. Mr. Lowry regains consciousness and is found to have loss of movement on his left side and hemianopsia. How should the practical nurse respond to Mrs. Lowry when she asks questions regarding her husband's potential for recovery?
 1. "It sounds as though you may be somewhat anxious to resume your former lifestyle."
 2. "It's difficult to know, but most people take at least a year to recover completely."
 3. **"Concern about recovery is common. Rehabilitation takes time and progress is often slow."** *
 4. "To be anxious is normal. Unfortunately, there is no way of estimating your husband's recovery potential."

RATIONALES

- Incorrect: This response does not provide Mrs. Lowry with any information and inappropriately assumes why she is asking about her husband's condition.
- Incorrect: Misleading statement that implies that Mr. Lowry will completely recover from his stroke.
- Correct: Acknowledges Mrs. Lowry's feelings of concern and provides her with accurate information about stroke rehabilitation.
- Incorrect: Inaccurate response, since the client's motivation level, previous health status, and extent of brain tissue damage are all factors that influence a stroke victim's recovery potential.

REFERENCE

- Black, J. M., & Matassarin-Jacobs, E. (1993). *Luckmann and Sorensen's medical-surgical nursing: A psychophysiologic approach* (4th ed.). Philadelphia: Saunders, p. 723.
- Smeltzer, S. C., & Bare, B. G. (1992). *Brunner and Suddarth's testbook of medical-surgical nursing* (7th ed.). Philadelphia: Lippincott, pp. 1676-1677.

Cognitive Level: Knowledge/Comprehension

3. What manifestation would indicate to the practical nurse that Mr. Lowry is experiencing mild hypokalemia?
1. **Anorexia ***
 2. Bradycardia
 3. Muscle spasms
 4. Elevated blood pressure

RATIONALES

Correct: Anorexia with decreased bowel sounds is a manifestation of hypokalemia.

Incorrect: A weak and dysrhythmic heart rate, rather than bradycardia, is a manifestation of hypokalemia.

Incorrect: Muscle weakness with decreased tendon reflexes, rather than muscle spasms, is a manifestation of hypokalemia.

Incorrect: Low, rather than elevated, blood pressure is a manifestation of hypokalemia.

REFERENCE

Phipps, W. J., Long, B. C., Woods, N. F., & Cassmeyer, V. L. (1991). *Medical-surgical nursing: Concepts and clinical practice* (4th ed.). St. Louis, MO: Mosby Year Book, p. 552.

Smeltzer, S. C., & Bare, B. G. (1992). *Brunner and Suddarth's testbook of medical-surgical nursing* (7th ed.). Philadelphia: Lippincott, p. 320.

Cognitive Level: Application

4. What should the practical nurse do to encourage Mr. Lowry to feed himself?
 1. Assist him with positioning the cutlery in his hands.
 2. Suggest that Mrs. Lowry take him to the cafeteria.
 3. Allow sufficient time for him to cut up his own food.
 4. **Arrange food items on his tray so that he can see them. ***

RATIONALES

- Incorrect: Mr. Lowry does not need assistance in positioning cutlery because he is able to use his unaffected arm for eating.
- Incorrect: Mr. Lowry would be exposed to many distractions in the cafeteria and the risk of aspiration for CVA clients is increased when there are distractions during meals.
- Incorrect: Because Mr. Lowry does not have the use of both of his hands, he will need assistance with any food that requires cutting.
- Correct: Because Mr. Lowry has a visual field deficit, placing food items where he can see them will encourage him to feed himself.

REFERENCE

- Smeltzer, S. C., & Bare, B. G. (1992). *Brunner and Suddarth's textbook of medical-surgical nursing* (7th ed.). Philadelphia: Lippincott, pp. 1668-1669.
- Ignatavicius, D. D., Workman, M. L., & Mishler, M. A. (1995). *Medical-Surgical nursing: A nurse process approach* (2nd ed.). Philadelphia: W. B. Saunders, p. 1256.

END OF CASE