



2017 CANDIDATE GUIDE

ELECTRONIC FETAL MONITORING

Congratulations on taking the next step in your career

– earning your certification and C-EFM credential!

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IT IS IMPORTANT TO READ THE INFORMATION IN THIS GUIDE. IT WILL ANSWER YOUR QUESTIONS AND WILL EXPLAIN ALL POLICIES TO WHICH YOU WILL BE SUBJECT.

NCC core and subspecialty programs are accredited by the National Commission for Certifying Agencies

ABOUT THIS GUIDE

This guide lists fees, general policies and provides information that will help you prepare for the examination including sample questions to familiarize you with question format, competency statements and examination content in outline form. Study resources are also suggested for your review. It is recommended that you familiarize yourself with the information in this guide.

NCC examinations are offered in several different test administrations options. The NCC publication ***Guide to Testing Methods*** will explain the different rules and policies based on how you are taking the examination. Please download this publication from the NCC website and review the exam administration options. It should answer your questions about the NCC examination process.

If you have other questions, please feel free to contact NCC through the NCC website at NCCwebsite.org.

NCC'S PHILOSOPHY OF TESTING

Certification is an evaluative process that provides the opportunity for nurses in the obstetric, gynecologic and/or neonatal specialty to demonstrate publicly what they know and to be recognized for the special knowledge they possess. The NCC certification credential carries no licensing authority. The ability to practice as a nurse is regulated by the state boards of nursing, and while certification may be required in some states for advanced practice roles, NCC has no regulatory power to require states to recognize NCC certification for this purpose. Practice and educational standards are reflected in the certification process, but the responsibility for development of such standards rests with the professional nursing specialty organizations and the nursing educational community. NCC encourages individual nurses to seek out information about how certification relates to state licensure requirements, program accreditation of the educational institutions attended, the educational and practice standards of national nursing specialty organizations, and employment expectations in the community.

FEES & GENERAL POLICIES

EXAMINATION AND RELATED FEES

EXAMINATION FEES*

Computer Exam Fees are \$210 which includes the non-refundable \$50 application fee.

Professional Education Center (PEC) Exam Fees are \$160 which includes the non-refundable \$50 application fee.

Institutional Certification Program (ICP) Exam Fees are pre-paid by your institution.

CHANGE REQUEST

Candidates who cannot take their currently scheduled examination, have missed their testing date or need to take a different exam - can request a change for a fee of \$125. Details are on the NCC website.

WITHDRAWAL FEE

A computer testing candidate who withdraws from testing will receive \$105 of their \$210 payment. PEC and ICP candidates cannot withdraw.

RETEST FEE

Retest candidates must pay full application and examination fees. There are no discounts and they must wait at least 90 days before resubmitting an application for testing.

SUBSTITUTION FEE

Candidate substitutions are not allowed for ineligible, withdrawal, or candidates who filed a change request.

THIRD PARTY PAYMENTS

Applicant fees paid by third parties will be reimbursed to the third party in the event the applicant is determined ineligible or withdraws within the specified time. Reimbursement will be in accordance with stated refund policies.

NO REFUNDS WILL BE CONSIDERED

- after the candidate has taken an examination
- for any candidate that is not successful in achieving certification
- for candidates who failed to take the exam via computer within their 90 day testing window and did not submit a change request within stated time frames

Computer exam candidates can change their scheduled testing date to another date within their window *once for free*.

Candidates must handle this directly with PSI/AMP.

Refer to the NCC testing guide for details.

FEES & GENERAL POLICIES

PAYMENT INFORMATION

- All applications are subject to a nonrefundable application fee.
- All fees are nonrefundable except where otherwise noted.
- Payments can be made by credit card (Visa, American Express and MasterCard only).
- Payments can be made by check: bank routing number and account number required.
- For payments made by third parties, any refund reimbursement will be issued to the third party and not to the applicant.
- All payments must be in US funds.
- NCC does not accept debit cards or split payments (part check and part credit card).
- Exam fees can be submitted only online at the NCC website. Applications will not be accepted by mail, phone or fax.
- NCC will accept group payments for certification exams from institutions. Details are on the NCC website.

OTHER PAYMENT RELATED FEES

INCOMPLETE APPLICATION FEE

Incomplete applications are those missing any requested information or documentation, contain wrong or no fees, or for any other reason results in an inability to determine applicant eligibility status. Such applications, are subject to a **\$30 re-processing fee** and all documents and fees must be reconciled in full no later than 21 days prior to the exam.

INELIGIBLE FEE

Any applicant determined ineligible (for any reason) will be assessed the **\$50 nonrefundable application fee**. The examination fee will be refunded.

RETURNED CHECK FEE

A **\$30 fee** will be assessed to any applicant whose check or e-check is returned to NCC for any reason. Remittance thereafter of all fees and applications must be in the form requested by NCC. Contact NCC for requirements.

CREDIT CARD CHARGEBACK

A **\$30 fee** will be assessed if an applicant's credit card company issues a notice of retrieval or a chargeback in response to the cardholder's dispute of the credit card charge. Remittance thereafter of all fees and applications must be in the form requested by NCC. Contact NCC for requirements.

THIRD PARTY PAYMENTS

Applicant fees paid by third parties will be reimbursed to the third party in the event the applicant is determined ineligible or withdraws within the specified time. Reimbursement will be in accordance with stated refund policies.

Certification will be revoked or withheld if a returned check or a chargeback request on a credit card payment results in loss of income to NCC and the monies are not recovered in an alternate payment. Fees received at any time will first be applied to any unpaid prior certification/special fees.

FEES & GENERAL POLICIES

GENERAL POLICIES

VERIFICATION OF CERTIFICATION

Third party notification of status will not be released without authorization from the Certified Professional. A \$30 fee is required for any third party notification or issuance of duplicates of test results reports. Verification requests can only be submitted after official written results have been received in the mail.

Verification requests can only be made via the online verification system on the NCC website. NCC does not issue verifications via the mail or fax.

UNSUCCESSFUL CANDIDATES

A candidate who sits for the examination and does not receive a passing score is not eligible for any refund nor for any credit on any later NCC exam.

EXAM CATEGORY CHANGES

Requests to change examination category must be made prior to making an appointment to take the test. You can only request an exam category change by completing a **Change Request Form** on the NCC website and submitting with non-refundable payment of \$125. **Candidates are only allowed one change option** (e.g. if you reschedule your exam date, you will not be able to change your exam category). All change requests must be approved by NCC. **There will be no refund of original or Change Request Form fees.** Eligibility must be re-established for the new exam category, and additional documentation and fees may be required. The time to consider eligibility for the new category will count toward the original 90 day window assigned to take the examination. Examinees must take the exam for which they have been determined eligible. No changes will be permitted on examination day. If a candidate knowingly or unknowingly takes an examination other than the one she/he was found eligible to take, the examination will not be scored. No refunds will be allowed, and all fee policies will apply if the candidate reapplies for an examination.

RETEST POLICY

You may retake the examination if you do not pass. You must reapply, submit all applicable fees and documentation, and re-establish eligibility according to the appropriate deadlines. There is no limit to the number of times you may retake the examination however candidates must wait at least **90 days before making application to retake the examination** by computer or paper and pencil. All submission deadlines for application for paper and pencil testing must be met. No accommodation will be given to those who are retesting via paper and pencil mode if they cannot meet application deadline because of the 90 day wait rule. The **maximum number of times a candidate can take the same NCC test in a calendar year is two.**

AMERICANS WITH DISABILITIES ACT

Special testing accommodations will be provided pursuant to the Americans with Disabilities Act. Contact the NCC office for further information before submitting your application.

FEES & GENERAL POLICIES

GENERAL POLICIES (CONTINUED)

REVIEW COURSES AND MATERIALS

NCC does not offer or sponsor review courses or review materials for its certification examinations. Examination candidates should review any purported course of study as being independent of NCC. You should carefully examine the merits of any individual exam preparation offering before you participate.

**POLICIES ARE SUBJECT
TO CHANGE
WITHOUT NOTICE.**

TEST DISCLOSURE

NCC does not make test questions available for review. Because test questions may be used for more than one examination administration, distributing this information would compromise the security of the test questions and would increase the cost of certification if the questions had to be replaced each year.

APPEALS PROCEDURE

Any request to waive any policy of the NCC Board of Directors relative to eligibility, administration, examination content issues, or certification maintenance must be received in writing within 60 days of the dispute. The correspondence should contain a detailed account as to why the NCC policy should be waived or the candidate's status should be changed. Such requests are referred to the NCC Policy Review Committee of the Board of Directors. All decisions will be provided in writing. Cases not resolved by the Policy Review Committee will be referred to the full Board of Directors.

NONDISCRIMINATION

It is the policy of NCC that no individual will be excluded from the examinations as a result of age, sex, race, religion, national origin, ethnicity, disability, marital status, sexual orientation, military status or gender identity.

REVOCAION

Your certification may be revoked for falsifying any information submitted relative to eligibility to take the certification examination or for maintaining certification, for losing your license to practice nursing, or for failing to pay designated certification or maintenance fees.

ANSWER SHEET REVIEW OF PAPER AND PENCIL EXAMINATIONS

All answer sheets are scored electronically. If you believe there might be a discrepancy in your results, you may request a review of your answer sheet for a fee of \$40. This request must be submitted online at the NCC website within 60 days of the exam date. The online request form is under "Other helpful information" in the Certification Exam section of the "Get Certified" tab. You will be notified of the results by mail.

RETENTION OF ANSWER SHEETS AND EXAMINATION BOOKLETS

All answer sheets are kept for one year from the date of the examination. Examination booklets used by the candidates are kept for six months from the date of the examination. Computer answer strings are kept for at least one year from the date of the examination.

ABOUT THE EXAM

ABOUT THE EXAM

TIMED EXAMINATION

Two (2) hours are allotted to complete the examination.

EXAM FORMAT

The Electronic Fetal Monitoring examination consists of up to 125 test questions. 100 are counted for scoring and the remainder are embedded in the exam as pretest items. The pretest items do not count toward the examinee's final results.

- There is one question format used for all NCC examinations.
- Each question has a premise (stem) and three alternative answers.
- The answer options are alphabetized by the first word in each answer option to randomize the answers.
- Computer tests are delivered in a different random order for each candidate.
- Questions will test both basic knowledge and application of knowledge.
- Questions that contain laboratory data will show results in conventional units of measure with international units in parentheses.
- Drugs are listed in both generic and trade names where appropriate.

EXAMINATION CONTENT DEVELOPMENT

The development of NCC credentialing involves many individuals and involves a meticulous process of review. There are three major groups that contribute to the test development process:

ITEM WRITERS:

MDs, RNCs and others identified with special expertise have the responsibility of drafting test items per designated assignment for review by the content team and expert reviewers. Item writers are solicited from the C-EFM population and through recommendations.

REVIEWERS:

Reviewers are MDs, RNCs or other designated experts who assist the content teams in review of test items developed by the item writers. Reviewers are responsible for reviewing items for content relevance and confirming that references cited for the questions support the items as written.

CONTENT TEAMS:

Content team members are experienced practitioners and are appointed on an annual basis by the NCC President. Content teams are solicited from the C-EFM (Certified-Electronic Fetal Monitoring) population, NCC item writer workshop participants and from experts in the field. To see the current membership composition of the Content Team responsible for the Electronic Fetal Monitoring examination, please visit the NCC website under the section on NCC Leadership.

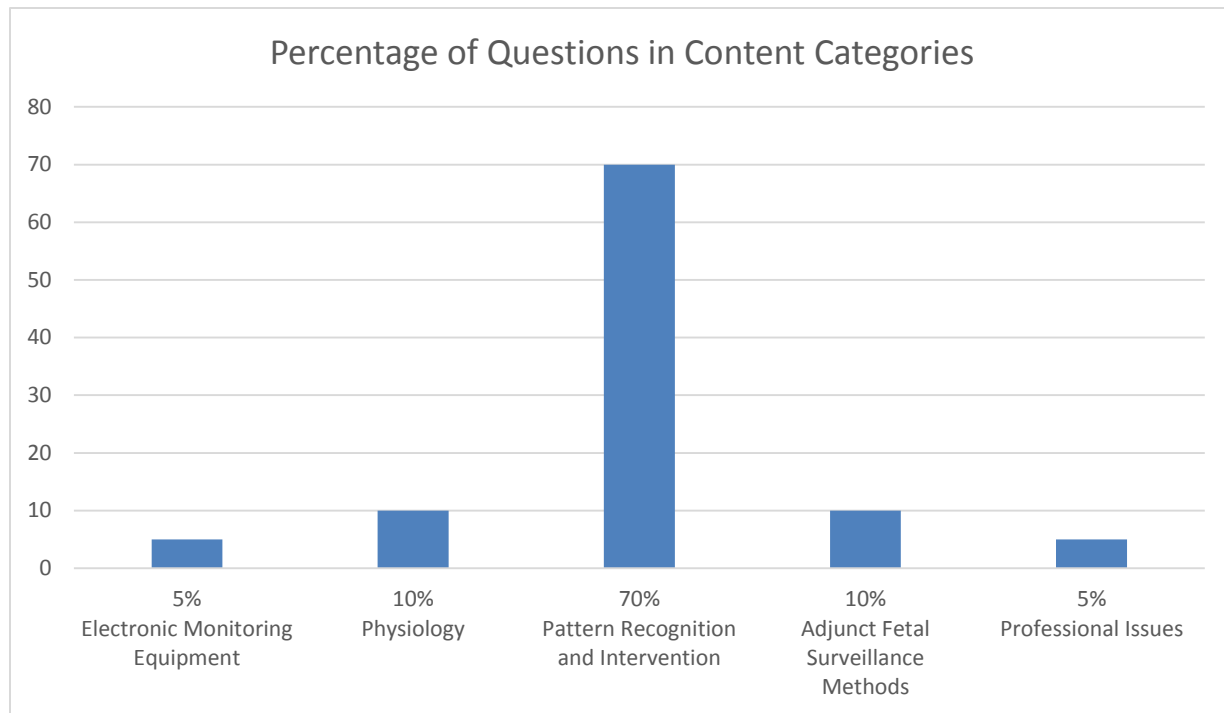
Content team members are MDs, RNCs or other identified experts who:

- develop and update the test outline and competency statements
- review test items developed by item writers
- set the pass/fail standard
- review item statistics from exam administrations and pretest examinations
- approve the exam forms to be administered
- review item banks
- undertake content validation studies

EXAMINATION CONTENT
TEST CONTENT OUTLINE & ASSOCIATED COMPETENCIES



Electronic Fetal Monitoring exam



The chart shows the percentage distribution of questions on the Electronic Fetal Monitoring exam across the major content categories covered on the examination.

The major focus is on Pattern Recognition and Intervention. EFM Monitoring Equipment and Professional Issues have the least emphasis.

EXAMINATION CONTENT

TEST CONTENT OUTLINE & ASSOCIATED COMPETENCIES

ASSOCIATED COMPETENCIES

- Apply knowledge of maternal-fetal assessment methods when selecting electronic fetal monitoring or intermittent auscultation to evaluate fetal status.
- Interpret data from the electronic fetal monitor to differentiate between actual fetal data and equipment failure.
- Use knowledge of the advantages and disadvantages of electronic fetal monitoring to provide information to the pregnant woman and her support person(s).
- Apply knowledge of fetal heart rate regulation to the interpretation of electronic fetal monitoring data.
- Identify and interpret the significance of fetal heart rate patterns.
- Interpret data from electronic fetal monitoring to differentiate between normal and abnormal fetal heart rate patterns.
- Apply knowledge of common pregnancy complications to the development of a comprehensive plan of care based on electronic fetal monitoring data.
- Apply knowledge of uteroplacental and maternal-fetal physiology as they relate to fetal oxygenation.
- Identify indications for adjunct fetal assessment and incorporate findings into the plan of care.
- Incorporate knowledge of current practice and legal practices into nursing care.

EXAMINATION CONTENT

TEST CONTENT OUTLINE & ASSOCIATED COMPETENCIES

EXAM OUTLINE

This is an outline of topics and areas which may be included in the Electronic Fetal Monitoring examination.

Percentages identified for the topic areas represent a range of the number of test questions assigned to each content area and therefore might total more or less than 100 percent. These ranges do not necessarily reflect the content of future exams.

- 10.00 Electronic Monitoring Equipment (5%)

- 10.01 Fetal heart rate monitoring
 - a. Internal
 - b. External
- 10.02 Uterine monitoring
 - a. External
 - b. IUPC
- 10.03 Equipment failure and troubleshooting
- 10.04 Artifact Detection
- 11.00 Physiology (10%)

- 11.01 Uteroplacental
 - a. Uteroplacental circulation
 - b. Fetal circulation
 - c. Fetal heart regulation
- 11.02 Uterine activity
 - a. Resting tone
 - b. Contractions
 - 1. Frequency
 - 2. Duration
 - 3. Intensity
- 11.03 Factors affecting fetal oxygenation
 - a. Uterine activity
 - b. Maternal factors
 - c. Anesthesia
 - d. Drugs (Therapeutic & Recreational)
 - e. Placental factors
 - f. Umbilical blood flow
 - g. Acid base and cord blood gases
- 11.04 Effects of maternal drugs on the fetus
- 12.00 Pattern Recognition and Intervention (70%)

- 12.01 Baseline heart rate
 - a. Bradycardia
 - b. Tachycardia
 - c. Variability
 - d. Sinusoidal
- 12.02 Fetal heart rate patterns
 - a. Accelerations
 - b. Decelerations
 - 1. Early
 - 2. Variable
 - 3. Late
 - 4. Prolonged
- 12.03 Response to tachysystole
- 12.04 Dysrhythmias and other variant patterns
 - a. Supraventricular tachycardia
 - b. Congenital heart block
 - c. Ectopic beats
- 12.05 Common Complications
 - a. Preterm Labor
 - b. Hypertension
 - 1. Gestational hypertension
 - 2. Preeclampsia-eclampsia
 - 3. HELLP syndrome
 - 4. Chronic (essential)
 - c. Postdates Pregnancy
 - d. Diabetes (Gestational, Type 1, Type 2)
 - e. Placental disorders (previa, abruption)
 - f. Uterine rupture/scar dehiscence
 - g. Infections
 - h. Multiple gestations
 - i. Maternal Obesity
- 13.00 Adjunct Fetal Surveillance Methods (10%)

- 13.01 Auscultation
- 13.02 Fetal movement counting
- 13.03 Nonstress testing
- 13.04 Fetal acid base interpretation
- 13.05 Biophysical profile
- 13.06 Fetal Acoustic Stimulation
- 14.00 Professional Issues (5%)

- including: Evidence Based Practice, Legal/Ethical/Communication Issues, Research, Patient Safety*

EXAMINATION CONTENT

STUDY RESOURCES

THE NICHD LANGUAGE AND DEFINITIONS ARE UTILIZED IN THE EXAM AS NOTED IN THE 2008, 2010 UPDATES AND 2015 REAFFIRMATION. ALL EFM TRACINGS USED IN THE EXAM ARE SET AT A SPEED OF 3CM/MIN FOR PURPOSES OF INTERPRETATION

STUDY RESOURCES

The following references are used by content team members and outside item writers to generate test questions for the EFM examination. This list is not intended as an all-inclusive list of references, nor does it imply that items on the current examinations were necessarily referenced from any of these publications.

- ACOG, Management of intrapartum fetal heart rate tracings, Practice Bulletin, No. 116, American College of Obstetricians and Gynecologists, Obstetrics & Gynecology 2010(Reaffirmed 2015); 116:1232–40.
- Cabaniss, et al. Fetal Monitoring Interpretation, LWW, 2010.
- Creasy, et al., Maternal Fetal Medicine Principles and Practice, Saunders-Elsevier, Philadelphia, 2014.
- Cunningham, et al., Williams’ Obstetrics, McGraw Hill, New York, 2014.
- Freeman, et. al., Fetal Heart Rate Monitoring, LWW, 2012.
- Gabbe, et al., Obstetrics Normal and Problem Pregnancies, 7th Ed., Saunders, 2016.
- Lyndon, et al Fetal Heart Monitoring Principles and Practices, AWHONN, Kendall Hunt, 2015.
- Management of intrapartum fetal heart rate tracings. Practice Bulletin, No. 116. American College of Obstetricians and Gynecologists. Obstetrics & Gynecology 2010 (Reaffirmed 2015);116:1232–40.
- Miller, et al., Mosby’s Pocket Guide to Fetal Monitoring: A Multidisciplinary Approach, Mosby Elsevier, 2016.
- NCC Monograph: NICHD Definitions and Classifications: Application to Electronic Fetal Monitoring Interpretation, Simpson, Kathleen, NCC, 2010.
- NCC Monograph: Fetal Assessment and Safe Labor Management, Simpson, Kathleen, NCC, 2016.
- Simpson, et al., Perinatal Nursing, LWW, Philadelphia, 2014.

SAMPLE QUESTIONS

ELECTRONIC FETAL MONITORING SAMPLE QUESTIONS

Listed below are five sample questions to acquaint you with the test question format. These questions do not reflect the scope or the difficulty level of the questions on the actual examination. The reference from which each question is derived is also cited. However, other references might substantiate a different answer, and the answer shown here might be substantiated by other references. The rigorous review to which actual test questions are subject is not applied to these sample questions. The focus that should be attended to in reviewing these items is format, not content.

1. Following an ultrasound which revealed decreased amniotic fluid, a woman at term is admitted in early labor. It should be recognized that oligohydramnios often results in fetal heart rate decelerations that are
 - A. late in onset or occur after the peak of the contraction
 - B. synchronous with that of the contraction
 - C. varied in depth and duration

Answer: C

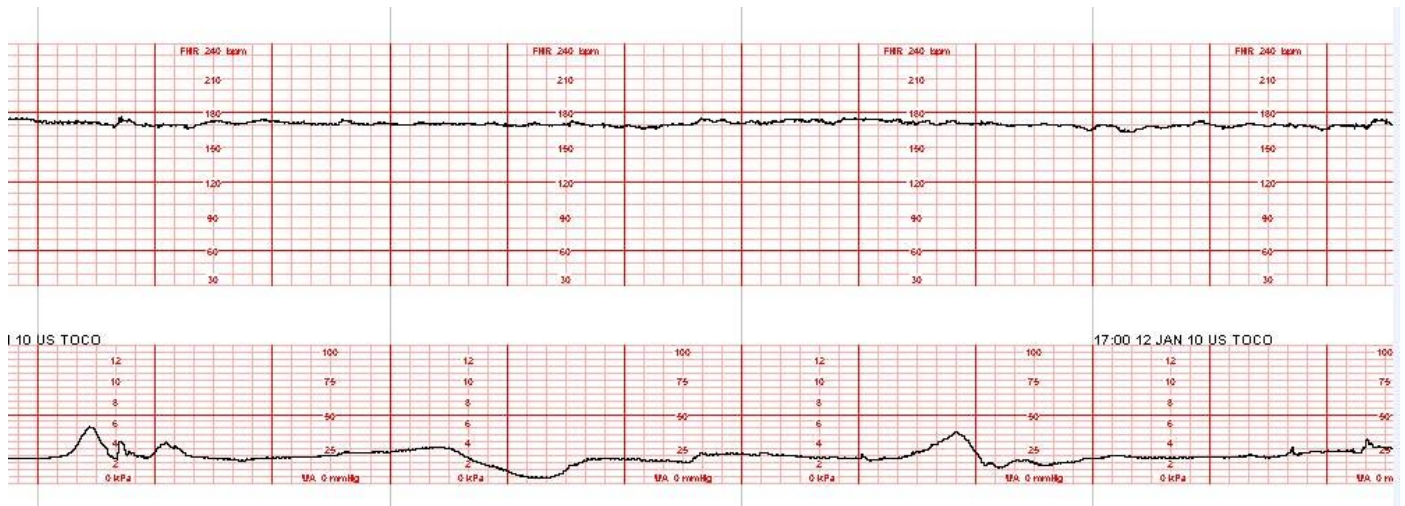
Lyndon, et al., Fetal Heart Monitoring Principles and Practices, Kendall Hunt, 2009, p. 146

2. In comparing early and late decelerations, a distinguishing factor between the two is
 - A. onset time to the nadir of the deceleration
 - B. the number of decelerations that occur
 - C. timing in relation to contractions

Answer: C

NCC Monograph: NICHD Definitions and Classifications: Application to Electronic Fetal Monitoring Interpretation, Simpson, Kathleen, NCC, 2010, p. 3

SAMPLE QUESTIONS



3. Based on interpretation the above tracing, this tracing would classified as

- A. Category I
- B. Category II
- C. Category III

Answer: B

NCC Monograph: NICJD Definitions and Classifications: Application to Electronic Fetal Monitoring Interpretation, Simpson, Kathleen, NCC, 2010, p. 5

4. The underlying cause of early decelerations is decreased

- A. baroreceptor response
- B. increased peripheral resistance
- C. vagal reflex

Answer: C

Cabaniss, et al., Fetal Monitoring Interpretation, LWW, 2010, p. 20

SCORING & SCORE REPORT

HOW EXAMS ARE SCORED

NCC examinations are criterion-referenced. This means the passing score is based on a predetermined criterion. This criterion is a statistical ability level established by the Content Team based on evaluation of criticality of content and the test questions' past statistical performance. Questions used to determine pass/fail have proven statistical history that demonstrates the question is appropriate for use to measure an individual's ability level.

There is no set percentage passing level. **An ability level for each candidate is calculated based on the number of questions they answer correctly (there is no penalty for wrong answers).** Pass/fail is determined based on this ability level as compared to pass/fail standard which is a predetermined ability criterion. When different forms of the examination are used, a process called equating is initiated. This procedure converts all results to a common scale. So someone who takes a slightly more difficult form of the exam will need to answer fewer questions correctly than someone who takes a slightly easier form of the exam.

NCC utilizes the item response theory of psychometrics for the analysis of its examinations. Item response theory (Rasch analysis) is the study of test and item scores based on assumptions concerning the mathematical relationship between abilities and item responses. This is a commonly used system, and such examinations as the NCLEX and other health related certification examinations utilize this type of psychometric analysis.

Test results reports will identify a pass/fail status and will give feedback on the various content areas of the examination in the form of word descriptors: very weak, weak, average, strong and very strong. No percentage or standard score will be given.

SCORING & SCORE REPORT

SAMPLE SCORE REPORT

Whether you take the computer or paper and pencil version of the examination, you will receive an official test results report from NCC. Shown below is a sample test result report for a candidate who has passed the examination.

ELECTRONIC FETAL MONITORING EXAMINATION

Test Results

NAME

DATE

ADDRESS

Pass/Fail: PASS

Exam Content Report

The following provides information regarding your performance on the different content areas tested on the examination.

This report is provided for informational purposes only to assist in identifying your areas of strength and weakness. There is no requirement that a certain number of questions in each content category must be answered correctly to pass the examination. Passing the examination is based on the total number of questions answered correctly on the entire examination.

Content Area & Percentage

Your Results:

Range of Questions Asked:

Physiology
(5-10%)

WEAK

Fetal Heart Rate
Interpretation & Intervention
(65-75%)

AVERAGE

EFM Equipment, Adjunct Fetal Assessment
& Legal Aspects of EFM
(9-19%)

AVERAGE

TERMS OF CERTIFICATION AND CERTIFICATION MAINTENANCE

WHEN YOU PASS THE EXAM

CREDENTIAL

Your NCC certification status entitles you to use the credential C-EFM (Certified – Electronic Fetal Monitoring).

TERMS OF CERTIFICATION

NCC certification is awarded for a period of three years.

The effective date for certification is the date on the official NCC letter that tells you that you have successfully completed the certification process.

**NO CONTINUING
EDUCATION IS ISSUED FOR
TAKING THE
ELECTRONIC FETAL
MONITORING EXAM.**

MAINTAINING YOUR CERTIFICATION

- NCC certification must be maintained on an ongoing basis every three years.
- Certification that is not maintained will expire
- The NCC certification maintenance program allows you to continue your certification status by obtaining 15 hours of continuing education credit
- For continuing education credit to be used for certification maintenance it must be earned between the date of your notification of certification and the date your maintenance is due.
- The maintenance process includes filing a maintenance application prior to your maintenance due date with appropriate fees and requested documentation. All CE must be in Electronic Fetal Monitoring. Using NCC CE modules does NOT automatically maintain your certification. You must file a maintenance application and pay a maintenance fee in addition to any CE fees.

You may apply for maintenance up to 1 year prior of your maintenance date. As long as you have obtained the required contact hours of continuing education credit—***you do not need to wait until your maintenance deadline to apply.*** Maintenance will be due in the quarter in which you were notified of your certification (*not the date on which you took the examination*). Please refer to the following for guidance:

Date of Notification of Certification

January-March 2017

April-June 2017

July-September 2017

October-December 2017

Certification Maintenance Due Dates

March 15, 2020

June 15, 2020

September 15, 2020

December 15, 2020

The NCC website has more detailed information

For more information about the certification maintenance program, click the purple "Maintain your Certification" box.