

# **IANDT CERTIFICATION MANUAL**

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**INTERNATIONAL ACADEMY OF NDT**

**CONTENTS**

REVISION STATUS..... 1

AMENDMENT RECORD..... 1

1 Scope..... 3

2 External References..... 3

3 Terms and Definitions..... 3

4 Abbreviations..... 6

5 Duties and responsibilities..... 7

6 Levels of Qualification..... 8

7 Eligibility..... 9

7.3 Industrial NDT Experience..... 11

7.4 Vision Requirements..... 12

8 Qualification Examinations..... 12

9 Certification..... 17

10 Renewal..... 19

11 Recertification..... 20

12 Files..... 21

13 Transition Period..... 22

14 Applicant Rights..... 22

Annex A: Available Certifications..... 23

Annex B: Examination Outline..... 24

Annex C: Structured Credit system for Level 1 and Level 2 and Level 3 ..... 57

Annex D: Grading Practical Examination Elements ..... 60

## Introduction

The present scheme (PCI) for the certification of competence of non-destructive testing (PCI – Personnel certification of Inspection personnel) personnel satisfies the requirements of applicable International Standards cited under External References.

The Certification Body (CB) has constituted a Certification Scheme Committee (CSC) and delegated to the CSC the responsibility for maintaining an overview of the operations of the CB. Membership of committees is open to the participation of individuals and organisations representative of stakeholders in the Scheme.

There is a wide range of qualification examinations available within the Scheme, covering various NDT methods and techniques. This document sets out the general requirements and procedures common to all general parts of the scheme. Supplementary appendices are published covering specific examinations applicable to various industry and product sectors.

IANDT certification scheme covers the following Industrial sector:

- a) Pre- and in-service testing which includes manufacturing

And under which the following product sectors are covered;

- a) Multi Sector (casting, forging, welding, wrought and Tubes)
- b) Castings
- c) Forgings
- d) Welds
- e) Wrought Products
- f) Tubes

This series of documents is designed to provide comprehensive information for users of the Certification Scheme. The complete list of published documents are available for information and download at [www.iandtcb.org](http://www.iandtcb.org)

### 1. Scope

- 1.1. This document describes a system for the qualification and certification of personnel who perform industrial Non-Destructive Testing in the methods mentioned in Annex. A.
- 1.2. Specific details of the certification available at each level in the various NDT methods and industry sectors are contained in the annexure to this document.

### 2. External References

ISO/IEC17024: General requirements for bodies operating certification systems of persons

CEN ISO/TR 25107: Non-destructive testing – Guidelines for NDT training syllabuses (ISO/TR 25107:2006)

CEN ISO/TR 25108: Non-destructive testing – Guidelines for NDT personnel training organisations (ISO/TR 25108:2006)

BS EN ISO 9712:2021: Non- destructive testing – Qualification and certification of NDT personnel

CEN/TR 14748: Guidance on the methodology for qualification of non-destructive tests

ISO 18490:2015 – Non-destructive testing – Evaluation of vision acuity of NDT Personnel

### 3. Terms and Definitions.

For the purposes of this document, the following definitions apply:

- 3.1. Approved Training Organisation (ATO) – A legal entity assessed against the criteria in CEN ISO/TR 25108 and approved by the CB to provide specified training courses for personnel intending to attempt a specified examination.
- 3.2. Authorised Examination Centre (AEC) – a location, approved by the CB, where qualification examinations are conducted.
- 3.3. Appropriately Qualified Personnel - Individuals carrying out supervision of candidates for certification holding relevant certification issued by a recognised certification body meeting the requirements of ISO/IEC 17024.
- 3.4. Note: The certification concerned must include supervisory competence and have a similar technical scope as that certification which is the subject of surveillance. Where there are insufficient appropriately qualified persons in a country outside of the present field of operations to satisfy the requirement, supervision of candidates may be carried out by persons holding relevant qualification acceptable to the CB.

- 3.5. Basic Examination - An examination, at Level 3, which demonstrates knowledge of materials science and technology, the qualification and certification system, and of the theoretical principles of at least four NDT methods at level 2.
- 3.6. Candidate - individual seeking qualification and certification and who gains experience under the supervision of suitably qualified personnel.
- 3.7. Certificate –document, issued by the certification body under the provisions of the applicable standard, indicating that the named person has demonstrated the competence(s) defined on the certificate
- 3.8. Certification - procedure used by the CB to confirm that the qualification requirements for a method, level and sector have been fulfilled, leading to the issue of a certificate
- Note: The issuing of a certificate does not authorize the holder to operate; this authority can only be given by the employer.*
- 3.9. Certification Body - The body that administers procedures for certification of NDT personnel in accordance with this specification, and fulfils the requirements of ISO/IEC 17024.
- 3.10. Certification Cycle – Maximum period of time permitted from the date of certification to the date of recertification.
- 3.11. Certification Process – activities by which a certification body determines that a person fulfils certification requirements including application, assessment, decision on certification, renewal, recertification and use of certificates and logos/ marks
- 3.12. Certification Requirements – set of specified requirements, including requirements of the scheme to be fulfilled in order to establish or maintain certification.
- 3.13. Competence – ability to apply knowledge and skills to achieve intended results
- 3.14. Employer - The organisation for which a candidate or holder of certification works on a regular basis. An employer may also be a candidate.
- 3.15. Examiner - An individual certificated to Level 3 in the method and sector for which he or she is to conduct, supervise and grade examinations and who is authorised so to do by the CB.
- 3.16. Examination – mechanism that is part of the assessment which measures a candidate’s competence by one or more means
- 3.17. General Examination –a written examination, at Level 1 or 2, concerned with the principles of an NDT method.
- 3.18. Higher Education – formal Learning that occurs after completion of secondary education in the field of engineering or science
- 3.19. Industrial NDT Experience –the experience needed to acquire the skill and knowledge to fulfil the provisions of qualification in the appropriate sector, and which is gained under the supervision of Appropriately Qualified Personnel, in the application of the NDT method in the sector concerned.
- Note: In the event that the qualification examination has been passed by a candidate lacking the experience required for certification, the CB will issue a letter of attestation to the successful candidate indicating that he or she has passed the qualification examination and needs only to meet the experience requirement in order to be certificated.*
- 3.20. Invigilator - An individual, trained by an AQB in the process of examination invigilation to requirements, who is impartial with respect to the candidate(s) under examination. Invigilators shall be authorized in writing by the CB on the AQB schedule of authorization.
- 3.21. Job-specific training - instruction, provided by the employer (or his agent) to the candidate or certificate holder in those aspects of non-destructive testing specific to the employer's products, NDT equipment, NDT procedures, and applicable codes, standards and specifications, leading to the award of operating authorisation.
- Note: A job specific examination, which is often solely of a practical nature, may be conducted by the employer as a part of the NDT personnel authorisation procedure or CB will conduct such examination as per the requirements.*
- 3.22. Main NDT Method Examination - written examination, at Level 3, which demonstrates the candidate’s general and specific knowledge of the applicable NDT method, and the ability to write NDT procedures for the NDT method as applied in the industrial or product sector(s) for which certification is sought.
- 3.23. Multiple choice examination question - A question worded in a manner giving rise to four potential replies, only one of which is correct, the remaining three being incorrect or incomplete

- 3.24. NDT Instruction - A written description of the precise steps to be followed in testing to an established standard, code, specification or *NDT procedure*.
- 3.25. NDT Media – testing products used to create visible indications caused by imperfections or flaws
- 3.26. NDT Personnel – personnel who perform NDT
- 3.27. NDT Technique - A specific way of utilizing an NDT method (for example, ultrasonic immersion technique).
- 3.28. NDT Procedure - A written description of all essential parameters and precautions to be observed when applying an NDT technique to a specific test, following an established standard, code or specification. An NDT Procedure can involve the application of more than one NDT Method or Technique.
- 3.29. NDT Method - Discipline applying a physical principle in Non-Destructive Testing (for example, Ultrasonic Testing).
- 3.30. NDT Training - a process of instruction in theory and practice in the NDT method in which certification is sought, which takes the form of training courses to a syllabus approved by the CB.
- 3.31. Operating Authorisation - written statement issued by the employer, based upon the scope of certification, authorizing the individual to carry out defined tasks. Authorisation may be dependent on the provision of job-specific training.
- 3.32. Practical Examination - assessment of practical skills in which the candidate demonstrates familiarity with and the ability to operate the necessary test equipment, to test the prescribed specimens, and to record and to analyse the resulting information to the degree required.
- 3.33. Psychometric process – statistical process to verify examinations are fair, reliable and discriminate between a competent and non-competent individual
- 3.34. Qualification - Evidence of training, professional knowledge, skill and experience as well as physical fitness to enable NDT personnel to properly perform NDT tasks
- 3.35. Qualification Examination - An examination administered directly by the CB, which assesses the general, specific and practical knowledge and skill of the candidate.

*Note: No documentary material, other than that provided by the examination center, is to be accessible to the candidate under any circumstances during a qualification examination. In an open book examination the candidate is provided with all necessary reference material by the examination Centre; during a closed book examination, the candidate is not allowed access to any reference material whatsoever.*

- 3.36. Qualified supervision - supervision of candidates gaining experience by NDT personnel certificated under the Certification Scheme or by non-certificated personnel who, in the opinion of the CB, possess the knowledge, skill, training and experience required to properly perform such supervision
- 3.37. Record of Certification - Document listing all certification issued under the rules specified in this document and its antecedents, indicating that the named individual has demonstrated proficiency in performing NDT within the scope of the certification.
- 3.38. Recertification – process for revalidation of a certificate by examination or by otherwise satisfying the certification body that the published criteria have been met
- 3.39. Referee – Individual that attests the validity of the candidate’s industrial experience
- 3.40. Renewal: Process for revalidation of a certification at any time up to five years after success in an initial, supplementary or recertification examination
- 3.41. Sector - A particular section of industry or technology where specialized NDT practices are used, requiring specific product related knowledge, skill, equipment or training. A sector may be interpreted to mean a product (castings, welds or wrought products) or an industry (railway or in-service testing).
- 3.42. Significant Interruption - absence from (or a change of) work activity which prevents the holder of certification from practising the duties corresponding to his or her level in the method and sector(s) for which certification was issued, for (a) a continuous period in excess of one year or (b) two or more periods for a total time exceeding two years.

*Note: Legal holidays, or periods of sickness or courses of less than thirty days are not taken into account when calculating the interruption.*

- 3.43. Specific Examination - written examination, at Level 1 or Level 2, concerned with testing techniques applied in a particular sector(s), including knowledge of the product(s) tested, and of codes, standards, specifications, procedures and acceptance criteria.

- 3.44. Specification - document stating requirements
- 3.45. Specimen - a sample used in practical examinations, which may include radiographs and data sets, and which are representative of products typically tested in the applicable sector, and which may include more than one area or volume to be tested.
- 3.46. Specimen master report - model answer, indicating the optimum result for a practical examination given a defined set of conditions (equipment type, settings, technique, specimen, etc.), against which the candidate's test report will be graded.
- 3.47. Structured credit system – Point system based on the NDT activities of the candidate used as an alternative to examination for renewal or recertification.
- 3.48. Structured experience program – program approved by the Certification body to reduce industrial experience
- 3.49. Supervision - act of directing the application of NDT performed by other NDT personnel, which includes the control of actions involved in the preparation of the test, performance of the test and reporting of the results.
- 3.50. Validation - act of demonstrating that a verified procedure will work in practice and fulfil its intended function, normally achieved by actual witnessing, demonstration, field or laboratory tests or selected trials.
- 3.51. Written Practice – documented procedure detailing the employer's requirements for qualification, certification and authorization of NDT employees.
- 3.52. Work activity – Performance of NDT-related functions and tasks
- 3.53. Renewal- Procedure for revalidation of a certificate without examination at any time upto five years after success in an initial, supplementary or recertification examination
- 3.54. Recertification – Procedure for re validation of a certificate by examination or by otherwise satisfying the CB that the published criteria for recertification are satisfied.

#### **4. Abbreviations**

The abbreviations used within this document or its appendices are as follows:

AEC	Authorised Examination centres
ATO	Approved Training Organisations
AUT	Automated Ultrasonic Testing
ACFM	Alternating Current Field Measurement
BRS	Basic Radiation Safety
CB	Certification Body
ET	Electromagnetic Testing (Eddy Current Testing)
IRIS	Internal Rotary Inspection System
MT	Magnetic Particle Testing
NDT	Non-Destructive Testing
OTJ	on-the-job (Training)
PA	Phased array Ultrasonic testing
PT	Penetrant Testing
QA	Quality Assurance
QC	Quality Control
RI	Radiographic Interpreter
RPS	Radiation Protection Supervisor
RT	Radiographic Testing
TOFD	Time of Flight Diffraction
UT	Ultrasonic Testing
VT	Visual Testing

## 5. Duties and responsibilities

### 5.1. The **Certification Body (CB)** shall

- 5.1.1. fulfil the requirements of ISO/IEC 17024 and will ensure that the PCI Certification Scheme(s) for qualification and certification of personnel, are controlled and operated so as to ensure, amongst other things, that they are impartial, and that decisions taken and implemented at all levels, including management and committees, are free from commercial or other pressures that may prevent the objective provision of certification services. CB is responsible for granting, extension, suspension, withdrawal or revalidation of certification.
- 5.1.2. Ensure that information obtained during the certification process, of from sources other than the applicant, candidate or certified person, is not disclosed to anyone without the written consent of the individual concerned, except where the law of land requires such information to be disclosed.
- 5.1.3. Initiate, promote, maintain and administer the PCI scheme in accordance with ISO/IEC 17024 and ISO9712 requirements by defining the scope of the scheme including the product and Industrial sectors.
- 5.1.4. Provide information for training courses that include syllabi for various methods and Levels.
- 5.1.5. approve properly staffed and Equipped Training Bodies (ATOs) & Examination Centres (AECs) based on the system compliance verification audits (Initial audit and subsequent periodic surveillance audits) on ATO /AEC premises against the criteria defined by the CB. CB shall monitor the outsourced work time to time to ensure the compliance. CB shall establish a process to authorise Examiners. CB shall conduct examinations in the presence of, and under the control of, an authorised invigilator of the CB, to ensure that the impartiality is maintained. CB shall monitor the performance of the approved examiners and invigilators on periodic basis.
- 5.1.6. Administer examinations through permanent Examination Centres or through adhoc locations and in all cases, CB shall bear the fullest responsibility for the examinations.
- 5.1.7. Maintain and update the question bank and the examination specimens along with their specimen Master Report. CB is responsible for the security of all the examination materials and shall ensure that the same materials are not used for the training purpose.
- 5.1.8. Establish a process for recognition of higher education. CB shall establish the conditions for the supervision of work activities, which candidates may claim experience.
- 5.1.9. Establish a process for approval of non certified individuals as a referee
- 5.1.10. Establish a process for structured credit system for the renewal and structured experience program.
- 5.1.11. Establish a documented system for the maintenance of the records, which shall be retained for a minimum of ten Years
- 5.1.12. Require all candidates and certificate holders to give a signed or stamped undertaking to abide by a code of ethics developed by the CB.

### 5.2. The **Examination Centre** shall

- 5.2.1. be working under the control of IANDT
- 5.2.2. operate the AEC as per the procedural requirements of IANDT
- 5.2.3. have the resources needed to prepare and conduct examinations, including the verification and control of equipment
- 5.2.4. have adequate qualified staff, premises and equipment to ensure satisfactory examinations for the Levels, methods, and sectors concerned;
- 5.2.5. prepare and conduct examinations under the responsibility of an examiner authorized by the IANDT, Using only examination questionnaires and specimens established or approved by the CB for that Purpose maintain appropriate examination documents according to the requirements of the certification body
- 5.2.6. When CB use to conduct examinations at customer premises the same premises may be considered as AEC and the CB will depute invigilator at all times during the examination. If Exam materials are stored in the customer premises the same shall be kept in the lock and key condition controlled by the invigilator duly appointed by IANDT to safeguard confidentiality and Impartiality requirements.

### 5.3. The **Employer** shall

- 5.3.1. Document the personal information which includes declaration of education, training and industrial experience and visual acuity needed to determine the eligibility of the candidate. If the candidate is self-employed, the industrial experience shall be attested to by a referee.
- 5.3.2. attest to the validity of the personal information provided by the candidate, including the declaration

of education, training and experience required for eligibility.

5.3.3 where required by regulatory requirements and codes, give the authorisation to operate in writing by the employer in accordance with a Written Practice or Quality Procedure that defines any employer required job-specific training and examinations designed to verify the certificate holder's knowledge of relevant industry code(s), standard(s), NDT procedures, equipment, and acceptance criteria for the products tested.

5.3.4 ensure that candidates gaining experience for certification are supervised by Appropriately Qualified Personnel.

5.3.5 with regard to certificated persons, be responsible for:

5.3.5.1 issuing the operating authorisation

5.3.5.2 verification of visual acuity in accordance with CB requirements, and

5.3.5.3 verification of continuity in the application of the NDT method without Significant Interruption.

5.3.5.4 All that concerns the authorisation to operate ie. Providing job-specific training (if required)

5.3.5.5 Maintaining appropriate records

5.3.5.6 Ensuring that personnel hold valid certification relevant to their tasks within the organisation

5.4. **Candidates** for certification shall:

5.4.1 provide verifiable documentary evidence in a form acceptable to the CB (a correctly completed for F-77 satisfies this requirement) that experience has been gained under the supervision of Appropriately Qualified Personnel (see definition at 3.4). Also, to provide documentary evidence of the training in accordance with the IANDT requirements.

5.4.2 provide documentary evidence of satisfactory completion of a course of training at an ATO approved by the CB.

5.4.3 undertake to abide by the Code of Ethics, published as F-71, for candidates and certificates holders

5.4.4 provide documentary evidence of vision satisfying the requirements of ISO9712 / IANDT requirements

5.4.5 assume all of the responsibilities described for the employer if self-employed.

5.5. **Certificate holders** shall

5.5.1 undertake to abide by the Code of Ethics published by CB

5.5.2 submit to an annual test of visual acuity, and provide the results of tests on Form F-83 to the employer.

5.5.3 notify the CB and the employer in the event that the conditions for validity of certification (see clause 17) are not fulfilled.

5.6. **Examiners** shall:

5.6.1 Be authorised by IANDT to conduct, supervise and grade examinations;

5.6.2 Be certified to level 3 in the NDT Method in the product and / or industrial sector for which they are authorized.

5.6.3 Not be permitted to examine any candidate that they have trained for the examination for a period of two years from the date of the conclusion of the training.

5.6.4 Not be permitted to examine any candidate who is working in IANDT as examiner.

5.7. **Referee** shall:

5.7.1 Be certified to Level 2 or 3 in any NDT method or non-certified personnel (approved by the CB) who possess the knowledge, skill, training and experience required to attest to the candidate's industrial experience.

## 6 Levels of Qualification

6.1. Level 1 personnel are qualified to carry out NDT operations according to written instructions under the supervision of Appropriately Qualified Level 2 or Level 3 Personnel. Within the scope of the competence defined on the certificate, Level 1 personnel may be authorized by the employer to perform the following in accordance with NDT instructions:

- set up equipment;
- carry out the test;
- record and classify the results in terms of written criteria;
- report the results.

- 6.2. Level 1 personnel have not demonstrated competence and hence not responsible for the choice of test method or technique to be used, nor for the assessment, characterisation or interpretation of test results.
- 6.3. Level 2 personnel have demonstrated competence to perform and supervise non-destructive testing according to established or recognized procedures. Within the scope of the competence defined on the certificate, level 2 personnel may be authorised by the employer to:
- select the NDT technique for the test method to be used;
  - define the limitations of application of the testing method;
  - translate NDT standards and specifications and procedures into NDT instructions adapted to the actual working conditions;
  - set up and verify equipment settings;
  - perform and supervise tests;
  - interpret and evaluate results according to applicable standards, codes or specifications & Procedures;
  - prepare written NDT instructions;
  - carry out and to supervise all tasks at or below Level 2;
  - provide guidance for personnel at or below level 2, and
  - organise and report the results of non-destructive tests.
- 6.4. Level 3 personnel are qualified to direct any NDT operation for which they are certificated and may be authorised by the employer to:
- assume full responsibility for a test facility or examination centre and staff;
  - establish, review for editorial and technical correctness and validate NDT instructions and procedures;
  - interpret codes, standards, specifications and procedures;
  - designate the particular test methods, techniques and procedures to be used;
  - within the scope and limitations of any certification held, carry out and supervise all tasks at all levels.
  - provide guidance and mentoring for NDT Personnel at all levels.
- 6.3.1 Level 3 personnel has demonstrated competence to perform and direct NDT operations for which they are certified. Level 3 personnel have demonstrated:
- a competence to interpret and evaluate test results in terms of existing codes, standards and specifications;
  - possession of the required level of knowledge in applicable materials, fabrication and product technology sufficient to enable the selection of NDT methods and techniques, and to assist in the establishment of acceptance criteria where none are otherwise available;
  - a general familiarity with other NDT methods.

## **7 Eligibility**

### **7.1 General**

The candidate has to fulfill the minimum requirements of vision and NDT Training prior to the examination and need to fulfill the minimum requirements for industrial experience prior to the certification. The age requirement for the Personnel applying for the exam is Minimum 18 Years for Level 1 and Level 2, 23 Years for Level 3.

### **7.2 Training**

- 7.2.1 To be eligible for examination, candidates must have successfully completed, prior to making application for examination, a CB validated course of training at IANDT Training division or IANDT Approved training organization (ATO). The training covers the relevant part of the published syllabus (CEN ISO/TR 25107) for which the certification is sought. For all levels, the candidate shall satisfactorily complete a course of theoretical and practical training delivered by the IANDT Training division or through an ATO approved by IANDT.
- 7.2.2 Candidate holding a valid training certificate issued by a third-party certification body (approved by Certification bodies coming under IAF/PAC) meeting the requirements of ISO17024 & ISO9712 shall be acceptable and considered as a completion of qualification training.
- 7.2.3 Theoretical training shall be delivered in either a face-to-face instructor led format or distance learning format or a combination of these formats. Practical training shall be through face-to-face instructor led format only. The training for Initial certification shall remain valid for a maximum period of ten years from the date of completion.

7.2.4 For mature candidates, with at least 5 years documented experience without significant interruption (see definitions) in the NDT method and sector for which certification is sought, who can provide evidence of completion of a course of training (covering the relevant syllabus) which was of at least the duration specified in Table 1, the need to have attended an approved course of training may be waived. Such candidates should apply to the CB as 'mature candidates', attaching evidence of that status. If a significant interruption in continuity in the application of the NDT method exists, the candidate shall undertake further training determined by CB. The minimum required duration of any training, which includes both theoretical and practical elements, is shown in Table 1 below:

**Table 1 – minimum required durations of training<sup>5</sup>**

NDT Method	Level 1 days <sup>2,5,6,7</sup>	Level 2 days <sup>1,2,5,6,7</sup>	Level 3 days <sup>5,7</sup>
ET <sup>4</sup>		11	06
PT	-	05	03
MT	-	05	04
RT <sup>3,4</sup>	-	15	05
RI	N/A	08	N/A
UT <sup>4</sup>	-	18	05
VT	-	05	03
BRS	02	N/A	N/A
PAUT	-	15	06
TOFD	-	11	06
Basic knowledge	(direct access to Level 3 examination parts A, B and C)		12
UT (supplementary Node and Nozzle)	N/A	02	N/A
AUT Data Interpretation	N/A	08	N/A
PAUT Data Interpretation	-	08	
TOFD Data Interpretation	-	06	
FMC-TFM	-	12	05
Alternating Current Field Measurement (ACFM)	-	11	06
Internal Rotary Inspection System (IRIS)	-	10	05
Automated Ultrasonic Testing		15	06

Training number of days includes both Practical and theoretical contents. One day duration is at least seven hours considered for the day calculation in the above table.

**NOTE 1.** Direct access to Level 3 requires the total number of hours shown in Table 1 for levels 2 and 3. Up to one third of the total specified in this table may take the form of OJT training documented using suitable form provided it is verifiable and covered practical application of the syllabus detailed in the training syllabus published as CEN ISO/TR 25107.

**NOTE 2.** For candidates who have successfully completed an approved course of training, formal structured and documented job specific training to the published syllabus may account for up to one third of the above training requirement. Documentary evidence of successful completion of approved training must be submitted with the application for examination and documentary evidence of any formal job-specific training must be submitted to the CB prior to certification.

**NOTE 3.** The training duration given in table 1 for the RT and UT methods reflect the fact that ISO 9712 permits a reduction of up to 50% in duration when the training provided covers only one product sector.

**NOTE 4.** Persons attending an approved course of training prior to gaining the experience necessary for certification are advised that many of the concepts involved in the application of the NDT method concerned may be difficult to grasp without previous experience. This is especially so for volumetric NDT methods (RT and UT) as well as ET, and training in such cases may need to be significantly extended beyond the minimum durations specified in Table 1.

**NOTE 5.** Training days are based upon candidates possessing basic mathematical skills. The total of any reductions allowed in the main method examination shall not exceed 50% of the duration specified in Table 2. A person who has graduated from technical college or university, or has completed two years of engineering or science study at college or university may be permitted a reduction of up to 50% of the total required number of training hours if the course or study is recognized by the CB.

**NOTE 6.** Existing certificate holders applying for a qualification examination covering the same NDT method in another industry or product sector will be required to provide evidence of completion of structured classroom and/or job-specific training in the application of the NDT method in that sector, the minimum duration of which is 25% of the time required in Table 1.

**NOTE 7.** The training durations given in table 1 for all levels include aspects of materials science, including defects associated with manufacturing and in-service degradation.

**NOTE 8.** The 12 days (80 hours) training required for Level 3 Basic qualification may be accrued through a combination of classroom training at an approved training organisation (minimum 50%), self study and distance learning. However, accrued, candidates should record the training undertaken for presentation to the CB. This note relates to the Level 3 Basic Examination (see 3.5), and reductions in training duration up to 50% maximum, may be granted based on holding:

a) Product Technology

The candidate holds a certificate covering:

a multi-sector (Casting, Welding and Forging)	- 02 days Reduction
castings	- 01 Day reduction
welds	- 01 Day Reduction
wrought products	- 01 Day Reduction

b) Level 2 general theory in four NDT methods, one of which is a volumetric method

The Level 3 candidate holds Level 2 certification in

Four NDT methods	- 04 Days reduction
Three NDT methods	- 03 Days reduction
Two NDT methods	- 02 Days reduction
One NDT methods	-01 Day reduction

**Note9.** Training duration may be reduced by up to 50 % when the candidate is a certified level 2 in the method, and up to 50 % of the required training duration may be acquired by practical training agreed by the certification body (but see note 5 above)

**Note10.** Training duration may be reduced to 60 Hours (8 Days) for Level 2 (FMC-TFM) provided candidate possess a valid level 2 certificate in PAUT

### 7.3 Industrial NDT Experience

- 7.3.1 Industrial NDT experience in the appropriate sector may be acquired either prior to or following success in the qualification examination
- 7.3.2 In the event that the experience is sought following successful examination, the results of the examination shall remain valid for up to five years.
- 7.3.3 Documentary evidence (in a form acceptable to the CB, ie.on form F-77) of experience satisfying the following requirements shall be confirmed by the employer and submitted to the CB prior to examination, or directly to CB prior to the award of certification in the event that experience is gained after examination.

7.3.4 Level 3 responsibilities require knowledge beyond the technical scope of any specific NDT method. This broad knowledge may be acquired through a variety of combinations of education, training and experience. Table 2. Details minimum experience for candidates who have successfully completed higher education, as well as candidates without higher education.

7.3.5 The minimum duration of experience for certification shall be as defined in Table 2.

**Table 2: Minimum Duration of Experience for certification**

NDT Method	Experience (days) <sup>a b c d</sup>					
	Level 1	Level 2		Level 3		
		With Level 1	Direct Access	Higher Education with L2	With Level 2	Direct access with Higher education
ET, RT, UT, ACFM, IRIS	45	135	180	270	450	540
MT, PT, VT	15	45	60	180	240	360
RI	N/A	135	180	N/A		
PAUT / AUT (DI)/PAUT (DI) / TOFD (DI)/FMC-TFM/AUT	-	90	120	270	450	540

<sup>a</sup> One-day duration is at least seven hours, which can be achieved on a single day or by accumulating hours. The maximum allowable hours in any one day is 12 hours. Experience in days is achieved by dividing the total accumulated hours by 7.

<sup>b</sup> A certified Level 1,2 and 3 adding an additional method may be permitted a reduction of required experience of 25% for that additional method.

<sup>c</sup> A certified Level 1,2 or 3 individual changing sector, adding another sector or technique for the same NDT method shall be required to gain additional experience of at least 25% of the experience required in Table 2: and this shall never be less than 15 days in duration.

<sup>d</sup> When the candidate seeking certification in more than one method, the total time of experience shall be the sum of the experience in each method

## 7.4 Vision Requirements

7.4.1 The requirements for colour perception and acuity of vision, together with the qualifications of those administering the vision tests, are fully defined in document F-83, which includes a form for recording the results of vision tests. The requirements are reproduced below for ease of information.

7.4.2 Candidates for qualification examinations will be required, on the day of the examination, to provide proof of a satisfactory vision test conducted within the 12 months preceding the examination.

7.4.3 Near vision acuity shall permit reading a minimum of Jaeger number 1 or Times Roman N 4.5 or equivalent letters (having a height of 1,6 mm) at not less than 30 cm with one or both eyes, either corrected or uncorrected;

7.4.4 Colour vision shall be sufficient that the candidate can distinguish and differentiate contrast between the colours or shades of grey used in the NDT method concerned as specified by the employer.

*NOTE: Subsequent to certification, the documented tests of visual acuity shall be carried out at least every twelve months and verified by the employer.*

7.4.5 IANDT accepts that a nominated official of an CB, or a Level 3 certificate holder, having documented proof of satisfactory training in the administration of the test, or licensed physician, nurse, ophthalmologist or optometrist is recognised as competent to, and may therefore conduct such tests for candidates and holders of certification. The Level 3 administering the near vision test must provide proof of appropriate training upon request by the CB.

## 8 Qualification Examination

### 8.1 Overview

#### 8.1.1 General

8.1.1.1 The examination shall cover an NDT method, technique, industrial sector and / or product sector as appropriate

8.1.1.2 The process used for the development and selection of examination questions is performed by CB using various mechanisms such as peer group review, input from subject matter experts, and statistical comparisons. We assure that questions are appropriate for the relevant syllabus for the method/technique/sector, and for the level of certification. Examinations require a passing grade of 70% for all written examinations and practical examinations.

- 8.1.1.3 The processes for preparation and conduct of examinations are designed to ensure the confidentiality and security of examination questions and examination documents
- 8.1.1.4 The practical specimens shall be maintained and monitored to ensure consistency and fairness of examinations using processes adopted by the CB.
- 8.1.1.5 The results of individual examinations shall remain valid for up to five years while the candidate completes any remaining certification requirements

#### 8.1.2 Examination elements

8.1.2.1 For Level 2 the examination shall consist of the following examination elements

- General Examination Element
- Specific Examination element
- Practical examination element
- NDT Instruction writing element

8.1.2.2 For Level 3 the examination shall consist of the following elements

Basic examination element which consists of the following items;

- Item A technical knowledge
- Item B certification body's document knowledge
- Item C Level 2 knowledge of methods

Main Method examination element which consists of the following items

- Item D General Examination
- Item E Specific examination
- Item F NDT Procedure preparation

#### 8.1.3 Examination time

IANDT shall specify and publish the maximum amount of time allowed for the candidate to complete each examination element, which shall be based upon the following:

- 8.1.3.1 For level 1 and Level 2, the total time for the examination elements shall be based on two minutes per multiple choice examination question for General examination element and three minutes per multiple choice examination question for specific examination element.
- 8.1.3.2 For Level 3, the total time for the examination elements shall be based on three minutes per multiple choice examination question in items B & E and two minutes for items A, C and D.
- 8.1.3.3 For Level 3 item F, four hours allowed to prepare an NDT Procedure and For Level 2 Written instruction a Maximum of 2 Hours is allowed.

#### 8.1.4 Examination Aids

8.1.4.1 The use of aids such as codes, standards, specifications allowed while attempting the item F of Level 3 examinations and Non-programmable calculators are permitted to use while examination. CB provides the Copy of the CM01 for the Level 3 Part B examination.

### 8.2 Examination Content and grading for Level 1 and Level 2

#### 8.2.1 General examination Element

The general examination element shall be a minimum of 40 multiple choice examination questions and shall be selected randomly from the CB's collection of general examination element questions valid at the date of examination.

#### 8.2.2 Specific examination Element

The specific examination shall have a minimum of 20 multiple choice examination questions selected from the CB's collection of specific examination element questions valid at the date of examination. If the specific examination element covers two or more sectors, the minimum number of questions shall be at least 30, taking into account the industrial or product sectors concerned.

#### 8.2.3 Practical examination Element

- 8.2.3.1 The practical examination element shall involve applying the test to prescribed specimens, recording (and, for Level 2 candidates, interpreting) the resulting information to the degree required, and reporting the results in the required format. Specimens used for training purposes shall not be used for examination.
- 8.2.3.2 Each Specimen will be uniquely identified and have a specimen master report which includes all of the equipment settings used to detect specified discontinuities contained within the specimen. Markings shall not interfere with the practical testing or inspection of the specimen and shall be concealed from the candidate while the specimen is being used for examination to prevent potential information correlation by candidates. The Specimen master sheet shall be compiled based upon at least two independent tests, and is validated by an authorized examiner holding ASNT/ISO9712 Level 3 for use in grading qualification examinations. The independent test reports from which the master report is compiled shall be retained as records.
- 8.2.3.3 Specimens shall be sector (one or more) specific, representing field geometries and shall contain discontinuities representative of those likely to occur during manufacturing or in service. They may be natural or artificial. Data sets, digital radiographic images and/or films can be used instead of physical specimens, but at least one physical specimen shall be examined (where appropriate). Specimens used for adjustment or for determination of thickness, coating or material properties do not need to contain discontinuities. For RT, the specimens to be tested do not need to contain discontinuities if these are exhibited in the data sets or radiographic images for Level 2 interpretation.
- 8.2.3.4 IANDT shall ensure that the number of specimens to be tested is adequate to the level, NDT method and sector concerned, and that the specimens contain reportable discontinuities. The number of specimens to be tested in the Level 1 and Level 2 practical examinations shall be in accordance with Annex B of this document.
- 8.2.3.5 The Level 2 candidate shall select the applicable NDT technique and determine the operating conditions related to a given code, standard or specification. The time allowed for the examination for every method shall be as per the Annex B of this document.

**8.2.4 NDT instruction writing examination element**

- 8.2.4.1 The NDT instruction writing examination element shall involve the creation of a written NDT instruction by the Level 2 candidate.
- 8.2.4.2 See the below Table for the weighting of the written examination instruction element.

**Table 3 — Percentile Weighting for NDT Instruction writing examination element for level 2**

<b>NDT instruction writing (Level 2 candidates)</b>		<b>% maximum</b>
a)	foreword (scope, reference documents)	5
b)	personnel	5
c)	equipment/media to be used	5
d)	product (description or drawing, including area of interest and purpose of the test)	10
e)	test conditions, including preparation for testing	10
f)	detailed instructions for application of the test, including settings	40
g)	recording and classifying of the test results	20
h)	reporting the results	5
<b>TOTAL</b>		<b>100</b>

## 8.2.5 Grading of the Level 1 and Level 2 examination

- 8.2.5.1 The general, specific, practical and NDT instruction writing examination elements shall be graded separately. IANDT utilizes conventional pre-prepared paper-based examinations and IANDT examiners are responsible for the grading of the examinations by comparison with model answers. Each correct reply scores 1 point and the mark attributed to the tests is the sum of the points obtained. For the final calculation, the mark of each test is expressed as a percentage.
- 8.2.5.2 The grading of the practical examination element shall be based on items 1 to 3 in Table 4, with the recommended weighting factors in relation to the level and method as applicable.

**Table 4 — Subjects and weighting factors for grading — Practical examination element**

Item	Subject	Weighting factor
		Level 2 %
1	Knowledge of NDT equipment and NDT media.	10
2	Application of NDT method	26
3	The detection of indications or discontinuities and reporting	64
	Total	100

Table D.1 gives guidance on additional details on each item, to be taken into account, as applicable by the examiner.

- 8.2.5.3 For the Level 1 candidates to be eligible for certification, they shall obtain a minimum grade of 70 % on each examination element (general, specific and practical). For the practical examination element, a minimum grade of 70 % shall be obtained for each specimen tested.
- 8.2.5.4 The certification body will classify some discontinuities as mandatory to be detected.
- 8.2.5.5 For the Level 2 candidates to be eligible for certification, they shall obtain a minimum grade of 70 % on each examination element (general, specific, practical and NDT instruction writing). For the practical examination element, a minimum grade of 70 % shall be obtained for each specimen tested and NDT instruction writing element, as applicable. The certification body will classify some discontinuities as mandatory to be detected and evaluated as unacceptable. The NDT instruction writing element shall be graded in accordance with Table 3.

## 8.3 Examination content and grading for Level 3

### 8.3.1 General

- 8.3.1.1 All candidates for Level 3 certification in any NDT method shall have successfully completed (with a grade of  $\geq 70\%$ ) the practical examination element for Level 2 in the relevant sector and method, except for the drafting of NDT instructions for Level 1. A candidate who is Level 2 in the same NDT method and product sector or who has successfully passed a Level 2 practical examination element for the NDT method in an industrial sector, is exempt from passing again the Level 2 practical examination element. This exemption is only valid for the product sectors covered by the industrial sector concerned and, in any other circumstances, the relevant sector is the sector in which the candidate seeks Level 3 certification.

### 8.3.2 Basic examination element

- 8.3.2.1 This written examination shall assess the candidate's knowledge of the basic subjects using at least the number of multiple-choice examination questions shown in Table 5. Examination questions shall be selected in an unpredictable way from the certification body's collection of basic examination element questions valid at the date of examination.

**Table 5 — Minimum required number of basic examination element questions for Level 3**

Item	Subject	Number of questions
A	Technical knowledge in materials science and process technology.	30
B	Knowledge of the certification body’s qualification and certification system based on this document. This will be an open-book examination.	10
C <sup>a</sup>	General knowledge of at least four methods as required for Level 2 and chosen by the candidate from the methods given in <a href="#">Table 1</a> . These four methods shall include at least one volumetric method (UT or RT).	15 for each test method (Total 60)
<sup>a</sup> For item C, the certification body may adjust the number of questions per method for methods impacted by evolving technology, increasing methods and techniques being added.		

8.3.2.2 Basic examination element shall be passed first and remain valid, provided that the first main method examination element is passed within five years after passing the basic examination element. A candidate holding a valid Level 3 certificate is exempt from the need to retake the basic examination element.

**8.3.3 Main method examination element**

8.3.3.1 This written examination shall assess the candidate’s knowledge of the main method subjects using the minimum required number of multiple-choice questions shown in Table 6. Examination questions shall be selected in an unpredictable way from the current collection of questions approved by the certification body at the time of the examination.

**Table 6— Minimum required number of Main Method examination element questions for Level 3**

Item	Subject	Number of questions
D	Level 3 knowledge relating to the NDT test method applied.	30
E	Application of the NDT method in the sector concerned, including the applicable codes, standards, specifications and procedures. This will be an open-book examination in relation to codes, standards, specifications and procedures.	20
F	Drafting of one or more NDT procedures in the relevant sector. The applicable codes, standards, specifications and other procedures shall be available to the candidate.	
Applicable aids (8.1.4) shall be specified and communicated to candidates. These aids will be provided by the certification body for use in open-book examinations.		

**8.3.4 Grading of Level 3 examinations**

**8.3.4.1 General**

The grading of the basic and main method examination elements shall be done separately. To be eligible for certification, a candidate shall pass both the basic and main method examination elements. For the three items A, B and C of the basic examination element and items D and E of the main method examination element the following requirements apply, when conventional pre-prepared paper-based examinations are used, an examiner shall be responsible for the grading of the examinations by comparing the replies given by the candidate against answer keys approved by the certification body. Each correct reply scores 1 point and the mark attributed to the tests is the sum of the points obtained. For the final calculation, the mark of each test is expressed as a percentage.

**8.3.4.2 Basic examination element**

In order to pass the basic examination, the candidate shall obtain a minimum grade of 70 % in each of parts A, B, and C.

**8.3.4.3 Main method examination element**

In order to pass the main method examination, the candidate shall obtain a minimum grade of 70 % in each of parts D, E, and F.

See Table D.2 for the recommended weighting of the written NDT procedure.

## **8.4 Conduct of examinations**

- 8.4.1 All examinations shall be conducted in examination centers established, approved, controlled and monitored by the certification body directly.
- 8.4.2 At the examination, the candidate shall have in their possession valid proof of identification and an official notification of the examination, which shall be shown to the examiner or invigilator upon demand.
- 8.4.3 Any candidate who, during the course of the examination, does not abide by the examination rules or who perpetrates, or proved to have cheated in a qualification examination will not be accepted as a candidate for any further examination for a period of 12 calendar months from the date of the examination in which cheating was established to have taken place. No examination results will be issued for those examination parts already completed and a letter will be sent to the candidate concerned and to the employer or sponsor explaining why the examination was terminated.
- 8.4.4 Examination questions shall be validated by the CB. The examination papers shall be validated and approved by the chief examiner and the grading shall be done in accordance with the procedure approved by the CB.
- 8.4.5 Written and practical examinations shall be invigilated by an examiner or by one or more invigilators placed under a certification body's responsibility.
- 8.4.6 With the approval of the certification body, a candidate for a practical examination may use their own equipment.
- 8.4.7 Candidates shall not be permitted to bring any personal items into the examination area. Candidates must not be in possession of any equipment or documentation, other than that provided by the examination centre with the authority of an authorized examiner, during a qualification examination.

## **8.5 Re-examination**

- 8.5.1 A candidate failing for reasons of unethical behaviour shall wait at least 12 months before reapplying (See 8.4.3)
- 8.5.2 A candidate who fails one or more elements of an examination (i.e. general, specific, practical etc.) may retake the failed examination no more than twice:
  - a) after a minimum time of one month (which will be reduced if further training acceptable to the IANDT has been satisfactorily completed);
  - b) no later than two years after the initial examination.
- 8.5.3 A candidate failing two re-examinations on one or more elements shall complete further training, acceptable to the certification body, and be required to retake all examination elements.

## **8.6 Supplementary examinations**

- 8.6.1 A certified Level 2 individual changing sectors or adding another sector for the same NDT method shall be required to take sector specific and practical examination elements for the new sector. Level 2 shall also be required to write the NDT instruction for the new sector.
- 8.6.2 A certified Level 3 individual changing sectors or adding another sector for the same NDT method shall be required to take the sector specific items E and F of the main method examination element only (see [Table 6](#)).

## **9 Certification**

### **9.1 Administration**

- 9.1.1 A candidate fulfilling all certification requirements shall be certified; and evidence of this certification shall be made available by the certification body. This can be achieved with the issue of hard copy certificate(s), and by electronically uploading and displaying the relevant information on a database on the certification body's website [www.iandtcbo.org](http://www.iandtcbo.org) on certificate verification column. The certification body also issue a wallet card which contains candidates unique ID to be correlated against the candidates certifications.

### **9.2 Certificates**

- 9.2.1 Certificates shall include the following information as a minimum:
  - a) the name of the certified individual, and date of birth of the certified individual;
  - b) a unique identification (e.g. a photo, or reference to a photo identification by number);
  - c) the name of the certification body;

- d) the scope of the certification, including reference to this document, the NDT method(s) and level of certification, and/or applicable techniques and sector(s), including issue date;
- e) any limitations to the certification, if applicable;
- f) the effective date of certification and date of expiry;
- g) the signature and/or authorization of a designated representative of the certification body;
- h) contact information or website address to issuing certification body database for verification purposes.

### **9.3 Conditions of certification**

#### **9.3.1 General**

Certification is granted, extended, suspended, withdrawn or revalidated by the certification body. The maximum period of validity of the certificate is 5 years. To be valid, certificates shall be supported by a current annual verification of acceptable vision as per clause 7.4.

#### **9.3.2 Granting**

Certification shall be granted by the certification body when all certification requirements are fulfilled. The period of validity shall commence upon the decision of certification by the certification body.

#### **9.3.3 Scope extension**

The certification body shall specify requirements for scope extension for situations where an individual seeks extension of their scope of certification for an existing certification (i.e. additional product sector).

At the discretion of the IANDT:

- a) the additional scope may be added to the existing certification and the original period of validity maintained; or
- b) a new certificate with a new period of validity may be issued for the extension to scope only.

#### **9.3.4 Suspension of certification**

Certification may be suspended by the certification body:

- a) if the individual becomes temporarily physically incapable of performing their duties;
- b) if the individual fails to provide evidence of meeting the visual acuity requirements of this document annually;
- c) if a significant interruption takes place in the method for which the individual is certified;
- d) at the discretion of the certification body for any other situations.

The certification body shall specify the conditions for revalidation where an individual's certification has been suspended.

#### **9.3.5 Withdrawal of certification**

Certification shall be withdrawn by the certification body:

- a) at the discretion of the certification body, i.e. after reviewing evidence of behaviour incompatible with the certification scheme or failure to abide by a code of ethics;
- b) if the individual fails to meet the requirements of renewal, until such time as the individual meets the requirements for renewal;
- c) if the individual fails recertification, until such time as the individual meets the requirements for recertification or certification;
- d) at the discretion of the certification body, when verifiable evidence is received from the employer stating that the individual has become physically incapable of performing their duties.

#### **9.3.6 Certification after withdrawal**

The certification body shall specify the conditions for certification where an individual's certification has been withdrawn in the case of 9.3.5 a) and d). (Refer: Complaints and Appeals procedure QP15)

#### **9.3.7 Waiting period prior to certification after withdrawal**

In case of 9.3.5 a), the certification can only be granted after a minimum 12 month waiting period. The certification body shall specify the length and conditions of the waiting period.

## **9.4 Certificates issued by other certification bodies**

- 9.4.1 IANDT consider certifications issued by another Recognized certification body. A Recognized Certification Body is one which is accredited by an accreditation body which is a member of the International Accreditation Forum (IAF) against the requirements of ISO 17024 covering ISO9712 requirements. A Qualifying certificate is one that is issued by a Recognized Certification Body, and which demonstrates compliance with ISO 9712, covers the same product & Industry sector and NDT Method. Holding of an additional Equivalent certification of IANDT is possible for the candidate seeking transfer of certificate from other Recognized CB. Refer QP28 for further information.
- 9.4.2 This process shall consider the granting of credit for valid certification including a review of education, training, experience, vision and examination requirements of the originating certification body. Refer QP30 for further information.
- 9.4.3 Where the prior certification issued by other CB is accepted without any additional examination, the expiry of the new certification shall not extend beyond that of the prior certification nor shall extend the scope of certification.
- 9.4.4 Existing level 3 certificate holders who are attempting additional level 3 examinations will be exempt the whole of the basic examination and, if they hold valid certification at level 3 covering the same method in a different sector, the part D (a general examination covering the Level 3 knowledge relating to the test method) is exempted.
- 9.4.5 Existing Level 3 candidates (who hold a valid ASNT / ACCP /ISO9712 certificate in any method appearing for different Level 3 method examination) is exempted to take Part A and Part C of Basic examination. The candidate needs to make a formal request and need to get the exemption from the CB before appearing for the examination.
- 9.4.6 Existing Level 3 candidates (who hold a valid ASNT / ACCP /ISO9712 certificate) appearing for Level 2 is exempted to take General examination. The candidate need to appear for specific and practical exams on the Industrial sector sought.
- 9.4.7 If any candidate elects to claim an exemption to which he or she is entitled, the mark obtained in the examination, which lead to the issue of certification, under which such exemption is claimed, where the actual examination mark cannot be ascertained, a mark of 70% will be used.
- 9.4.8 For the purpose of claiming exemptions, certification issued by other independent NDT personnel certification bodies may be considered by the CB for equivalence (contact the CB for further information).
- 9.4.9 If any candidate elects to include in his or her examination any part or parts from which he or she could be exempt, then failure in any such part will cause the candidate to fail and no certification will be issued. The validity of any existing certificates held by the candidate will be unaffected by such failure.

## **10 Renewal**

**10.1** Prior to the completion of the period of validity following certification and recertification, certification shall be renewed by the certification body for a new period of validity on production of:

- a) documentary evidence of a satisfactory near vision acuity examination taken within the preceding 12 months; and
- b) documentary evidence of a satisfactory colour vision and/or grey scale perception examination taken within the preceding 60 months; and
- c) verifiable documentary evidence of continued satisfactory work activity without significant interruption in the method and sector for which certificate renewal is sought;

and either:

- d) successful completion of a practical examination element in accordance with 11.2.2 except that it shall consist of a minimum of 50 % of the examination specimens required by 11.2.2; or
- e) successfully meeting the requirements of the structured credit system as given in 10.2 and Annex C.

If the criterion c) for renewal is not met, the individual shall complete the practical examination elements required by [11.2.2](#).

**10.2** Where a candidate elects to use the structured credit system, they shall provide evidence to the certification body to demonstrate achievement of a minimum of 100 points in the 5-year renewal period based on the requirements of [Table C.1](#)

10.2.1 For candidates seeking renewal of Level 1 certificates, a minimum of 75 of the 100 points is required for any combination of activities listed in part A of [Table C.1](#).

- 10.2.2 For candidates seeking renewal of Level 2 or 3 certificates, a minimum of 50 of the 100 points is required for any combination of activities listed in part A of Table C.1.
- 10.2.3 IANDT has opted to implement a renewal period of 5 years.
- 10.2.4 Where a candidate is seeking renewal for more than one certificate, points granted for a specific activity can be applied to the total points required for each certificate for those activities not specific to a particular method (e.g., "Current individual membership in NDT or NDT related society"). However, candidates shall meet the total number of points required (i.e., 100 points) for each certificate for which renewal is being sought.
- 10.3** It is the responsibility of the certificate holder to initiate the procedure required for renewal.
- 10.3.1 The renewal application should be made to the certification body before the date of the expiration of the certification and shall be no later than 12 months after the date of expiration of the certificate.
- 10.3.2 If the renewal application is received prior to or on the date of expiration of the certificate, the renewal date of the new certificate shall be the same as the date of expiration of the certificate (i.e., no interruption in certification). The date of expiration of the new certificate shall be no more than 5 years from the date of expiration of the original certificate.
- 10.3.3 If the renewal application is received after the date of expiration of the certificate, the renewal date of the new certificate shall be the date on which all requirements for renewal are met. In this case, there shall have been an interruption in the certification period. The date of expiration of the new certificate shall be no more than 5 years from the date of expiration of the original certificate.
- 10.4** The maximum period of validity of the certificate at renewal is 5 years.
- 10.5** Certificate holders at Level 1 and Level 2 not meeting the requirements for renewal shall fulfil the requirements for recertification as specified in [11.2.2](#). Certificate holders at Level 3 not meeting the requirements for renewal shall fulfil the requirements for recertification, as specified in [11.3.1](#).

## **11 Recertification**

### **11.1 General**

Prior to the completion of each second period of validity, the certified individual shall be recertified by the certification body for a new period of five years or less, provided the individual meets the criterion for renewal specified in [10.1 a\)](#) and [10.1 b\)](#) and meets the applicable conditions described in the following.

It is the responsibility of certificate holders to initiate the procedures required to obtain recertification. If the recertification is applied for more than 12 months after expiry of the period of validity, a complete examination (general, specific, and practical) for Level 1 and Level 2 and a main method examination element (Table 6, items D, E and F) for Level 3 shall again be passed successfully.

### **11.2 Levels 1 and 2**

- 11.2.1 Levels 1 and 2 certificate holders seeking recertification shall provide a confirmation issued by the employer of continued satisfactory work activity without significant interruption in the method and sector for which recertification is sought and satisfy [11.2.2](#).
- 11.2.2 The individual shall successfully complete the practical examination element which demonstrates continued competence to carry out work within the scope specified on the certificate. This shall include testing specimens (see [Annex B1 to B17](#)) appropriate to the scope of recertification and in addition, for Level 2, the production of a written instruction suitable for the use of Level 1 personnel (see [8.2.4.1](#)). If the individual fails to achieve a grade of at least 70 % for each specimen tested (weighted according to the guidance in [Table 4](#)), and, for Level 2, for the instruction, two re-examinations of the recertification examination shall be allowed after at least 7 days and within 12 months of the first attempt at the recertification examination.
- 11.2.3 In the event of failure in the two allowable re-examinations, the certificate shall be withdrawn. In order to reinstate certification, a candidate shall:
- complete further training, acceptable to the certification body; and
  - retake all examination elements required for initial certification.
- The date of expiration of the reinstated certificate shall be no more than 5 years from the date of expiration of the original certificate.
- 11.2.4 If the criterion in [11.2.1](#) for recertification is not met, the individual shall complete the general, specific and practical examinations required by [11.1](#).

### 11.3 Level 3

11.3.1 Level 3 certificate holders seeking recertification shall provide a confirmation issued by the employer of continued satisfactory work activity without significant interruption in the method and sector for which recertification is sought and:

- a) satisfy the Level 3 requirements of [11.3.3](#) for a written examination; or
- b) meet the requirements for a structured credit system, as given in [11.3.2](#) and [Table C.1](#).

The individual shall decide between the examination or credit system for recertification. If the credit system is chosen and requires submission of employer's documents or access to an employer's premises, the individual shall provide to the certification body a written statement of approval from the employer.

In both cases (written examination or credit system), the individual shall either provide appropriate documented evidence, acceptable to the certification body, of their continued practical competence in the method or pass a Level 2 practical examination, as specified in [11.2.2](#), except for the drafting of NDT instructions

11.3.2 Where a certificate holder elects to use the structured credit system, they shall provide evidence to the certification body to demonstrate achievement of a minimum of 100 points in the 5-year recertification period based on the requirements of [Table C.1](#).

For certificate holders seeking recertification of Level 3 certification:

- a minimum of 50 and a maximum of 70 of the 100 points is required for any combination of activities listed in item A of [Table C.1](#); and
- a minimum of 30 and a maximum of 50 of the 100 points is required for any combination of activities listed in item B of [Table C.1](#).

IANDT has opted to implement a recertification period of 5 years.

Where a certificate holder elects to take the written examination or does not meet the structured credit system requirements, they shall successfully complete an examination that includes:

- a) a minimum of 20 multiple-choice questions on the application of the test method in the sector(s) concerned which demonstrates an understanding of current NDT techniques, standards, codes or specifications, and applied technology; and
- b) a minimum of 10 multiple-choice questions on the requirements of the certification body's certification scheme.

11.3.3 If the individual fails to achieve a grade of at least 70 % in the recertification examination, a maximum of two retests of the recertification examination shall be allowed. The time period within which all tests are to be taken shall be 12 months, unless otherwise extended by the certification body.

11.3.4 In the event of failure in the two allowable re-examinations, the certificate shall be withdrawn. In order to reinstate certification, a candidate shall:

- complete further training, acceptable to the certification body; and
- retake all main method examination items as required for initial certification.

The date of expiration of the reinstated certificate shall be no more than 5 years from the date of expiration of the original certificate.

11.3.5 A candidate who applies for and does not meet the requirements of the credit system shall be recertified in accordance with [11.3.3](#). In the event of failure at the first attempt at recertification by examination, only one retest of the recertification examination shall be allowed within 12 months of the date of application for recertification via the structured credit system.

## 12 Files

12.1 The certification body shall be responsible for the maintenance of:

- a) an actual list or database of all certified individuals classified according to level, NDT method and sector;
- b) an individual file for each candidate who has not been certified, for at least five years from the date of application;
- c) an individual file(s) for each certified individual and for each individual whose certification has lapsed containing:
  - 1) a unique personal identifier (e.g., a photo or reference to a photo identification by number);

- 2) application forms;
- 3) examination records, such as questionnaires, answers, description of specimens, records, results of test, NDT procedures, and grade sheets;
- 4) renewal and recertification documents, including evidence of visual acuity and continuous work activity;
- 5) reason(s) for any withdrawal of certification.

Individual files shall be kept under suitable conditions of safety and confidentiality for as long as the certificate remains valid and for at least one full certification cycle after the certification has lapsed.

### **13 Transition period**

**13.1** When the CB applies certification to an NDT Method, which is not yet covered its scheme or when new sector is created, it will allow for a transition period. During this transition period IANDT will temporarily appoint, for a period not exceeding five years from the date of implementation of the new method or sector, duly qualified personnel as examiners for the purpose of conducting, supervising and grading the examinations. The five-year implementation period is not to be used by the certification body as a means to certify candidates who do not meet all the qualification and certification requirements of this document. When new/additional training requirements of the new method or sector are adopted, currently certified personnel shall provide documented evidence of full compliance at the next recertification cycle.

**13.2** Duly qualified personnel means that such personnel:

- a) have the knowledge of the principles of NDT and the specific knowledge in relation to the sector;
- b) have industrial experience of the application of the NDT method;
- c) have the ability to conduct examinations;
- d) be able to interpret the questionnaire and results of examinations.

**13.3** Within two years of the date of appointment, these examiners shall have gained certification by satisfying the requirements for recertification as described in 11.3.1

### **14 Applicant Rights**

**14.1** IANDT has a process for the resolution of appeals, complaints and disputes received from candidates, certified persons, their employers, and other parties regarding the certification process, qualification criteria, or the performance of certified persons.

**14.2** IANDT ensures confidentiality. Information gained in the course of the certification process of persons shall not be disclosed to any third party except as required by law.

## Annex A: Available Certification Programs

### Industrial Sector: Pre an In-Service testing which includes manufacturing

NDT method	Level	Product category /Sector	Scope
Ultrasonic Testing (UT)	2,3	Welds	Butt welds in plate, Pipe, Node and Nozzle
Ultrasonic Testing (UT)	2,3	Multi-sector (W/C/F/WP/T)	
Radiography Testing (RT)	2,3	Welds / Casting	-
Radiography Interpretation (RI)	2	Welds	Dense / Light metal
Eddy current Testing (ET)	2,3	Welds	Single Frequency
Eddy Current Testing – Tubes (ET)	2,3	Wrought	Multi Frequency
Basic Radiation Safety (RS)	1	General	-
Internal Rotary Inspection Systems (IRIS)	2,3	Tube Testing	-
Penetrant Testing (PT)	2,3	Multi-sector (W/C/F/WP/T)	Portable / Fixed Installations
Magnetic Particle Testing (MT)	2,3	Multi-sector (W/C/F/WP/T)	Portable / Fixed Installations
Phased Array Ultrasonic Testing (PAUT)	2,3	Multi-sector (W/C/F/WP/T)	-
Time of flight Diffraction (TOFD)	2,3	Welds	-
Automated Ultrasonic testing Girth weld Data Interpretation	2	Welds	-
Phased Array Ultrasonic Testing – Data Interpretation - (PAUT - DI)	2	Welds	-
Time of flight Diffraction - Data Interpretation (TOFD - DI)	2	Welds	-
Visual Testing (VT)	2,3	Multi-sector (W/C/F/WP/T)	-
Welding Inspector (WI)	2,3	-	-
Alternating Current field Measurement (ACFM)	2,3	Welds	
Automated Ultrasonic Testing (AUT)	2,3	Welds	Inspection of pipeline girth welds

**Annex B : Examination Outline**

**B1: Ultrasonic Testing**

Method: Ultrasonic Testing									
S. No	Level	Sector	Examination Requirements						
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)			
01	2	Welds  (Scope: Butt welds in Plate and Pipe)	<b>General (Multiple Choice Questions)</b>				40	80	70
			<b>Specific (Multiple Choice Questions)</b>				20	60	70
			<b>General Practical Examination</b>				01	60	70
			The candidate is required to complete system or function checks as selected by the examiner from: check linearity of amplifier and time base; check probe index point, angle, squint, beam spread, resolution; the candidate will also determine areas of lamination in a plate.						
			<b>Specific Practical Examination</b>						
			<b>Group 3.1 Butt welds in plate (one sample to be attempted)</b>						
			<b>Category</b>	<b>Thickness</b>	<b>Type of weld</b>				
			3.1.2	6-15 mm	Deposited from one side of the plate		01	150	70
			3.1.3	Over 15 mm	Deposited from both sides of the plate				
			3.1.4	Over 15 mm	Deposited from one side of the plate				
<b>Group 3.2 Butt welds in pipe (one sample to be attempted)</b>									
<b>Category</b>	<b>OD (mm)</b>	<b>Wall Thickness</b>							
3.2.1	50-105	6 to 15 mm		01	150	70			
3.2.3	Over 105	6 to 15 mm							
3.2.4	Over 105	Over 15 mm							
<b>Instruction Writing</b>				01	120	70			
The candidate shall write an NDT instruction on a plate butt or pipe butt weld suitable									

			for Level 1 personnel as selected by the examiner.			
02	2	Welds (Scope: Nodes and Nozzles) Supplementary Examination.	<b>Group 3.8</b> Candidates will be examined on one full penetration and one partial penetration joint, both of which will be of variable geometry. Success must be achieved in both samples and in Group 3.1 and/or Group 3.2 to obtain certification for this group.	02	150 per sample	70
			<b>Group 3.9</b> This group covers full penetration node joints. Success must be achieved in one sample and in 3.1. and/or 3.2 to obtain certification for this group.	01	150	70
03	3	Welds	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)			
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	30	60	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include at least one volumetric test method.	10 60	30 120	70 70
			<b>MAIN METHOD</b>			
			<b>PART D :</b> Level 3 knowledge relating to the test method for which certification is sought	30	60	70
<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	20	60	70			
<b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	01	240	70			
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**Method: Ultrasonic Testing**

S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
04	2	Multisector (Welds, Casting, Forging, Wrought and Tubes)	General (Multiple Choice Questions)	40	80	70
			Specific (Multiple Choice Questions)	30	90	70
			<u>General Practical Examination</u> The candidate is required to complete system or function checks as selected by the examiner from: check linearity of amplifier and time base; check probe index point, angle, squint, beam spread, resolution; the candidate will also determine areas of lamination in a plate.	01	60	70
			<u>Specific Practical Examination</u> The candidate is required to test and report one specimen selected by the examiner from each product sector covering welds, castings, Forging, Tubes and wrought products. (Candidate can choose any product sector combinations ranging from 3 to 5)	03/05	120 Per specimen	70
			<u>Instruction Writing</u> The candidate shall write an NDT instruction on a butt weld suitable for Level 1 personnel as selected by the examiner.	01	120	70
05	3	Multisector	<b>BASIC</b>			
			PART A: Material Science and Process Technology (Multiple Choice Question)			
			PART B: Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	30	60	70
			PART C: Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include atleast one volumetric test method.	10 60	30 120	70 70

		<b>MAIN METHOD</b>				
			<b>PART D</b> : Level 3 knowledge relating to the test method for which certification is sought	<b>30</b>	<b>60</b>	<b>70</b>
			<b>PART E</b> : Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	<b>20</b>	<b>60</b>	<b>70</b>
			<b>PART F</b> : Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: Refer QP25</b>			<b>Reference Literature: ReferQP25</b>			

**B2: Phased Array Ultrasonic Testing**

**Method: Phased Array Ultrasonic Testing**

S. No	Level	Sector	Examination Requirements														
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)											
01	2	Welds	<b>Eligibility</b>														
			Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in PAUT provided candidate has to appear and Pass a 40 questions General paper in Ultrasonic Testing.														
			<b>Specific (Multiple Choice Questions)</b>		<b>30</b>	<b>90</b>	<b>70</b>										
			<b>Practical Examination</b>														
Assembly and Functional check of the PAUT equipment, including process and encodes. Probe "element check "to be saved as data file and html report.			<b>01</b>	<b>60</b>	<b>70</b>												
<b>Specific Practical Examination</b>			<b>03</b>	<b>120 per sample</b>	<b>70</b>												
<b>Data Acquisition</b>																	
Production of complete datafiles from three samples selected by the examiner (one from each group below), including setup and preparation of the specimen and visual examination, scan plans, carrying out tests, post test procedures, collecting and storing test data. The candidate shall demonstrate beam steering, encoding parameters, focusing and DAC/TCG production and in addition, demonstrate completeness of data. Weld preparation should include double-V and single-V configurations, with varying wall thicknesses.																	
<table border="1"> <thead> <tr> <th colspan="3">Group 3.1 Butt welds in plate (one sample to be attempted)</th> </tr> <tr> <th>Category</th> <th>Thickness</th> <th>Type of weld</th> </tr> </thead> <tbody> <tr> <td>3.1.2</td> <td>6-15 mm</td> <td>Deposited from one side of the plate</td> </tr> <tr> <td>3.1.3</td> <td>Over 15 mm</td> <td>Deposited from both sides of the plate</td> </tr> <tr> <td>3.1.4</td> <td>Over 15 mm</td> <td>Deposited from one side of the plate</td> </tr> </tbody> </table>						Group 3.1 Butt welds in plate (one sample to be attempted)			Category	Thickness	Type of weld	3.1.2	6-15 mm	Deposited from one side of the plate	3.1.3	Over 15 mm	Deposited from both sides of the plate
Group 3.1 Butt welds in plate (one sample to be attempted)																	
Category	Thickness	Type of weld															
3.1.2	6-15 mm	Deposited from one side of the plate															
3.1.3	Over 15 mm	Deposited from both sides of the plate															
3.1.4	Over 15 mm	Deposited from one side of the plate															

			<p><b><u>Data Analysis</u></b></p> <p>Examination and assessment and analysis of the three datafiles from the above samples, using appropriate viewing software. Candidates shall complete a test report with the results in a prescribed format which indicates defect location and size. The report shall also include discontinuity characterisation (size and position of defects in relation to a known datum/s) and evaluation, echo dynamic characterisation. The report shall include detection of mandatory discontinuities.</p> <p><b><u>Instruction Writing</u></b></p> <p>The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.</p>	03	120 per sample	70
				01	120	70
02	2	Multi (Weld, Casting, Forging, Wrought & Tubes)	<p><b><u>Eligibility</u></b></p> <p>Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in PAUT provided candidate has to appear and Pass a 40 questions General paper in Ultrasonic Testing.</p> <p><b><u>Specific (Multiple Choice Questions)</u></b></p>	30	90	70
			<p><b><u>Practical Examination</u></b></p> <p>Assembly and Functional check of the PAUT equipment, including process and encodes. Probe “element check “to be saved as data file and html report.</p> <p><b><u>Specific Practical Examination</u></b></p> <p><b><u>Data Acquisition</u></b></p> <p>Production of complete datafiles for one sample selected by the examiner on each product sector categories (one from each product category Weld, Casting, Forging, Wrought and Tubes), including setup and preparation of the specimen and visual examination, scan plans, carrying out tests, post test procedures, collecting and storing test data. The candidate shall demonstrate beam steering, encoding parameters, focusing and DAC/TCG production and in addition, demonstrate completeness of data.</p> <p><b><u>Data Analysis</u></b></p> <p>Examination and assessment and analysis of the five datafiles from the above samples, using appropriate viewing software. Candidates shall complete a test report with the results in a prescribed format which indicates defect location and size. The report shall also include discontinuity characterisation (size and position of defects in relation to a known datum/s) and evaluation, echo dynamic characterisation. The report shall include</p>	01	60	70
				03/05	120 per sample	70
				03/05	60 per sample	70

			<p>detection of mandatory discontinuities.</p> <p><b>Instruction Writing</b></p> <p>The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.</p>	<b>01</b>	<b>120</b>	<b>70</b>
<b>03</b>	<b>3</b>	<b>Welds /Multi Sector</b>	<b>Eligibility</b>	<b>10</b>	<b>30</b>	<b>70</b>
			<p>Candidate has to possess a valid ISO 9712 Level 3 in UT duly recognised by the CB. IF the candidate the ISO 9712 Level 3 from IANDT he is eligible for PAUT Level 3. If the candidate possess an ISO 9712 Level 3 from a CB duly recognised by IANDT then the candidate has to appear for the PART B section of BASIC. Candidate with ASNT Level 3 with ISO9712 Level 2 in PAUT is eligible for ISO 9712 PAUT Level 3.</p> <p><b>In that case candidate needs to appear for PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)</p>			
			<b>MAIN METHOD</b>			
			<p>PART E: Level 3 knowledge relating to the specific test method for which certification is sought. (Multiple choice questions)</p> <p>PART F: Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.</p>	<b>20</b>	<b>60</b>	<b>70</b>
				<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: ReferQP25</b>			<b>Reference Literature: ReferQP25</b>			

**B3: Time of Flight Diffraction Ultrasonic Testing**

**Method: Time of Flight Diffraction Ultrasonic Testing**

S. No	Level	Sector	Examination Requirements														
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)											
01	2	Welds	<b><u>Eligibility</u></b>														
			Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in PAUT provided candidate has to appear and pass a 40 questions General paper in Ultrasonic Testing.														
			<b>Specific (Multiple Choice Questions)</b>		<b>30</b>	<b>90</b>	<b>70</b>										
			<b><u>Practical Examination</u></b>														
The candidate is required to optimise a calibration of TOFD ultrasonic equipment			<b>01</b>	<b>60</b>	<b>70</b>												
<b><u>Specific Practical Examination</u></b>																	
<b><u>Data Acquisition</u></b>																	
The candidate is required to complete an examination, collect and store test data of two linear welds from the categories required selected by the examiner and produce complete and accurate data files. Weld preparation should include double-V and single-V configurations selected from the below configurations.																	
<b>Group 3.1 Butt welds in plate (one sample to be attempted)</b>																	
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Category</th> <th style="width: 20%;">Thickness</th> <th style="width: 60%;">Type of weld</th> </tr> </thead> <tbody> <tr> <td>3.1.2</td> <td>6-15 mm</td> <td>Deposited from one side of the plate</td> </tr> <tr> <td>3.1.3</td> <td>Over 15 mm</td> <td>Deposited from both sides of the plate</td> </tr> <tr> <td>3.1.4</td> <td>Over 15 mm</td> <td>Deposited from one side of the plate</td> </tr> </tbody> </table>			Category	Thickness	Type of weld	3.1.2	6-15 mm	Deposited from one side of the plate	3.1.3	Over 15 mm	Deposited from both sides of the plate	3.1.4	Over 15 mm	Deposited from one side of the plate	<b>02</b>	<b>120</b>	<b>70</b>
Category	Thickness	Type of weld															
3.1.2	6-15 mm	Deposited from one side of the plate															
3.1.3	Over 15 mm	Deposited from both sides of the plate															
3.1.4	Over 15 mm	Deposited from one side of the plate															
<b><u>Data Analysis</u></b>																	
Interpret the results of five recorded weld scan data files selected by the examiner and report the results of the inspections in an indicated format, showing the size and location of flaws in the welds.			<b>05</b>	<b>150</b>	<b>70</b>												

			<p><b>Instruction Writing</b></p> <p>The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.</p>	<b>01</b>	<b>120</b>	<b>70</b>
<b>02</b>	<b>3</b>	<b>Welds</b>	<p><b>Eligibility</b></p> <p>Candidate has to possess a valid ISO 9712 Level 3 in UT duly recognised by the CB. IF the candidate the ISO 9712 Level 3 from IANDT he is eligible for TOFD Level 3. If the candidate possess an ISO 9712 Level 3 from a CB duly recognised by IANDT then the candidate has to appear for the PART B section of BASIC.</p> <p><b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)</p>	<b>10</b>	<b>30</b>	<b>70</b>
			<p><b>MAIN METHOD</b></p>			
			<p>PART E: Level 3 knowledge relating to the specific test method for which certification is sought. (Multiple choice questions)</p>	<b>20</b>	<b>60</b>	<b>70</b>
			<p>PART F: Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.</p>	<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: ReferQP25</b>			<b>Reference Literature: ReferQP25</b>			

**B4: Magnetic Particle Testing**

Method: Magnetic Particle Testing						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds  (Scope: Butt welds in Plate Pipe and fillet weld T-Joint)	General (Multiple Choice Questions)	40	80	70
			Specific (Multiple Choice Questions)	20	60	70
			<u>General Practical Examination</u> In the practical part the candidate is required to conduct and report on a function or control test on magnetic inks, permanent magnets, electromagnets, bench units and/or UV light intensity as selected by the examiner.	01	60	70
			<u>Specific Practical Examination</u> The candidate is required to test and report on two specimens covering butt weld in plate, butt weld in pipe and a T- joint, employing both fluorescent and black inks and using the most appropriate magnetization techniques as selected from the list below for the component type: Permanent magnets / Electromagnets	02	120	70
			<u>Instruction Writing</u> The candidate shall write an NDT instruction on a plate butt or pipe butt weld suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	2	Castings/Forging  Supplementary Examination.	Specific (Multiple Choice Questions)	30	90	70
			The candidate is required to test and report on one specimen of casting/forging selected by the examiner. The techniques used will be selected by the examiner from those shown below and may include both fluorescent and black inks.  Permanent Magnets, Electromagnets, Bench Unit: Current Flow, Magnetic Flow, Rigid coil, Threaded Bar	02	60 per specimen	70
03	2	Multisector (Weld, Casting Forging, Wrought	General (Multiple Choice Questions)	40	60	70
			Specific (Multiple Choice Questions)	30	90	70

		<b>and Tubes)</b>	<p><b>Practical Examination</b></p> <p>The candidate is required to test and report one specimen selected by the examiner from each product sector (welds (in plate, pipe or T-joint), castings, Forging, Tubes and wrought products). The techniques used will be selected by the examiner from those shown below and may include both fluorescent and black inks. Candidate can choose any product sector combinations ranging from 3 to 5</p> <p>Permanent magnets Electromagnets</p> <p>Bench unit: Current flow, Magnetic Flow, Rigid Coil, Threaded Bar</p> <p><b>Instruction Writing</b></p> <p>The candidate shall write an NDT instruction on a plate butt or pipe butt weld suitable for Level 1 personnel as selected by the examiner.</p>	<b>03/05</b>	<b>60 per specimen</b>	<b>70</b>
				<b>01</b>	<b>120</b>	<b>70</b>
<b>04</b>	<b>3</b>	<b>Multisector</b>	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)			
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	<b>30</b>	<b>60</b>	<b>70</b>
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include atleast one volumetric test method.	<b>10</b>	<b>30</b>	<b>70</b>
				<b>60</b>	<b>120</b>	<b>70</b>
			<b>MAIN METHOD</b>			
			<b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought	<b>30</b>	<b>60</b>	<b>70</b>
			<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	<b>20</b>	<b>60</b>	<b>70</b>
			<b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: ReferQP25</b>			<b>Reference Literature: ReferQP25</b>			

**B5: Liquid Penetrant Testing**

Method: Liquid Penetrant Testing						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds  (Scope: Butt welds in Plate Pipe and fillet weld T-Joint)	General (Multiple Choice Questions)	40	80	70
			Specific (Multiple Choice Questions)	20	60	70
			<u>General Practical Examination</u> In the practical part the candidate is required to conduct and report on a function or control test of a penetrant system as selected by the examiner.	01	60	70
			<u>Specific Practical Examination</u> The candidate is required to test and report on two specimens covering butt weld in plate, butt weld in pipe and a T-joint, employing both fluorescent and colour contrast penetrants. Water washable Solvent removable (Mandatory) Fluorescent and contrast penetrants.	02	120	70
			<u>Instruction Writing</u> The candidate shall write an NDT instruction on a plate butt or pipe butt weld suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	2	Castings/Forging  Supplementary Examination.	Specific (Multiple Choice Questions)	30	90	70
			The candidate is required to test and report on one specimen each selected by the examiner from castings and wrought products (including forgings) using two different techniques from those shown below.  Water washable, Solvent removable, Post emulsifiable Fluorescent and color penetrants.	02	60 per sample	70

03	2	Multisector (Weld, Casting Wrought, Tubes and Forging)	General (Multiple Choice Questions)	40	60	70
			Specific (Multiple Choice Questions)	30	90	70
			<b>Practical Examination</b> The candidate is required to test and report one specimen selected by the examiner from each product sector category (welds (in plate, pipe or T-joint), castings, Forging, Tubes and wrought products). The techniques used will be selected by the examiner. Candidate can choose any product sector combinations ranging from 3 to 5  Water washable Solvent removable Post emulsifiable Fluorescent and color penetrants. <b>Instruction Writing</b> The candidate shall write an NDT instruction on a plate butt or pipe butt weld suitable for Level 1 personnel as selected by the examiner.	03/ 05	60 per sample	70
		01	120	70		
04	3	Multisector	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include at least one volumetric test method.	60	120	70
			<b>MAIN METHOD</b>			
			<b>PART D :</b> Level 3 knowledge relating to the test method for which certification is sought	30	60	70
<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	20	60	70			
<b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	01	240	70			
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**B6: Radiographic Interpreter**

**Method: Radiographic Interpreter**

S. No	Level	Sector	Examination Requirements											
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)								
01	2	Welds (Light/Dense Metal) X-ray/Gamma Radiation	<b>General (Multiple Choice Questions)</b>											
				40	80	70								
			<b>Specific (Multiple Choice Questions)</b>											
			20	60	70									
			<b>Specific Practical Examination</b>											
			Certification is awarded in a number of combinations of metal groups:											
			<table border="1"> <thead> <tr> <th>Category</th> <th>Light</th> <th>Dense</th> <th>Combines</th> </tr> </thead> <tbody> <tr> <td>No. of samples</td> <td>10</td> <td>10</td> <td>10 (Light 5 + Dense 5)</td> </tr> </tbody> </table>				Category	Light	Dense	Combines	No. of samples	10	10	10 (Light 5 + Dense 5)
Category	Light	Dense	Combines											
No. of samples	10	10	10 (Light 5 + Dense 5)											
			<p>Dense Metals: Ferritic Steels including clad steels, Austenitic steels and high nickel alloys, Copper, Copper alloys, Monel and Titanium alloys</p> <p>Light Metals: Aluminum, Magnesium and their alloys</p> <p>For each radiograph the candidate is required to locate and identify defects and to comment upon radiographic technique and quality of the radiographs.</p>											
			10	240	70									
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25											

**B7: Radiographic Testing**

Method: Radiography Testing														
S. No	Level	Sector	Examination Requirements											
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)								
01	2	Welds (Light/Dense Metal)  X-ray/Gamma Radiation	General (Multiple Choice Questions)	40	80	70								
			Specific (Multiple Choice Questions)	20	60	70								
			<p><b>Specific Practical Examination</b></p> <p>In the practical part of the specific examination, the candidate shall radiograph two samples and to evaluate the radiographs produced for are as requiring further investigation.</p> <p>The samples shall consist of at least one of each from the following categories: Plate butt welds (3.1), Pipe butt welds (3.2)</p> <p>And shall include carbon steel and aluminium amongst the material groups tested</p> <p><b>Note:</b> Both written examinations and practical tests will be selected according to the sector and category of certification being sought with particular reference to the material group(s)and type of radiation.</p> <p><b>Radiographic Interpretation:</b></p> <table border="1"> <tr> <td>Category</td> <td>Light</td> <td>Dense</td> <td>Combines</td> </tr> <tr> <td>No. of samples</td> <td>10</td> <td>10</td> <td>10 (Light 5 + Dense 5)</td> </tr> </table> <p>Dense Metals : Ferritic Steels including clad steels, Austenitic steels and high nickel alloys, Copper, Copper alloys, Monel and Titanium alloys</p> <p>Light Metals : Aluminum, Magnesium and their alloys</p> <p>For each radiograph the candidate is required to locate and identify defects and to comment upon radiographic technique and quality of the radiographs</p> <p><b>Instruction Writing:</b></p> <p>Candidates are in addition required to produce a detailed NDT instruction, suitable for a Level 1 to follow, for one of the samples elected by the examiner.</p> <p>Note: Candidates possess valid ISO 9712 RI Level 2 shall be exempted from the Radiographic Interpretation.</p>	Category	Light	Dense	Combines	No. of samples	10	10	10 (Light 5 + Dense 5)			
			Category	Light	Dense	Combines								
No. of samples	10	10	10 (Light 5 + Dense 5)											
	02	240	70											
	10	240	70											
	01	120	70											

02	2	Casting (X-ray/Gamma Radiation)	General (Multiple Choice Questions)	40	80	70
			Specific (Multiple Choice Questions)	20	60	70
			<u>Specific Practical Examination</u>  In the practical part of the specific examination, the candidate shall radiograph two samples and to evaluate the radiographs produced for are as requiring further investigation. The samples shall consist of Castings and RT shooting has to cover different RT technics.  <u>Radiographic Interpretation:</u> 10 Casting Films to be Interpreted by the candidate  For each radiograph the candidate is required to locate and identify defects and to comment upon radiographic technique and quality of the radiographs  <u>Instruction Writing:</u>  Candidates are in addition required to produce a detailed NDT instruction, suitable for a Level 1 to follow, for one of the sample selected by the examiner.  Note: Candidates possess valid ISO 9712 RI Level 2 shall be exempted from the Radiographic Interpretation.	02	240	70
				10	240	70
03	3	Welds /Castings	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include atleast one volumetric test method.	60	120	70
			<b>MAIN METHOD</b>			
			<b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought	30	60	70
<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	20	60	70			
<b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	01	240	70			
Examination Syllabus: Refer QP25			Reference Literature: Refer QP25			

**B8: Eddy Current Testing**

**Method: Eddy Current Testing**

S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds	<b>General (Multiple Choice Questions)</b>	40	80	70
			<b>Specific (Multiple Choice Questions)</b>	20	60	70
			<u><b>General Practical Examination</b></u> In the practical part, the candidate is required to choose the necessary probes and equipment to conduct the test, conduct operational and function checks on equipment and probes and record the results.	01	30	70
			<u><b>Specific Practical Examination</b></u> The candidate is required to test and report on two specimens covering butt weld in plate, butt weld in pipe and a T- joint, Cruciform and gusset welds employing surface probes.	02	240	70
			<u><b>Instruction Writing</b></u> The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	3	Welds	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include at least one volumetric test method.	60	120	70
			<b>MAIN METHOD</b>			
			<b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought	30	60	70
			<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided	20	60	70

			as reference material <b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: Refer QP25</b>			<b>Reference Literature: Refer QP25</b>			

**B9: Eddy Current Testing - Tubes**

Method: Eddy Current Testing - Tubes						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Tubes-Wrought Products	<b>General (Multiple Choice Questions) (not applicable if supplementary)</b>	40	80	70
			<b>Specific (Multiple Choice Questions)</b>	20	60	70
			<b>General Practical Examination</b> In the practical part, the candidate is required to choose the necessary probes and equipment to conduct the test, conduct operational and function checks on equipment and probes and record the results.	01	30	70
			<b>Specific Practical Examination</b> The candidate is required to test and report on two tube bundles made of different material grouping employing bobbin probes.	02*	360	70
			<b>Instruction Writing</b> The candidate shall write an NDT instruction for the tube testing suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	3	Tubes-Wrought Products	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include atleast one volumetric test method.	60	120	70
			<b>MAIN METHOD</b>			
			<b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought	30	60	70

			<p><b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material</p> <p><b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.</p>	<p><b>20</b></p> <p><b>01</b></p>	<p><b>60</b></p> <p><b>240</b></p>	<p><b>70</b></p> <p><b>70</b></p>
<b>Examination Syllabus: Refer QP</b>			<b>Reference Literature: Refer QP</b>			

\*A Bundle of 13 tubes is considered as a single specimen. 2 Bundles will be examined by the candidates with different material group.

**B10: Basic Radiation Safety****Method: Basic Radiation Safety**

S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
1	BRS Level 1	General	General Theory (Multiple Choice Questions 30)	30	60	70
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**B11: AUT (Automated Ultrasonic Girth Weld Inspector) Data Interpretation**

Method: AUT (Automated Ultrasonic Girth Weld Inspector) Data Interpretation						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds	<p align="center"><u>Eligibility</u></p> <p>Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in AUT Data Interpreter provided candidate has to appear and pass a 40 questions General paper in Ultrasonic Testing.</p>			
			<p><b>Specific (Multiple Choice Questions)</b></p>	20	60	70
			<p><b><u>General Practical Examination</u></b></p> <p>The candidate is required to assess and evaluate Automated ultrasonic data from a typical production run for accuracy and completeness</p> <p><b><u>Specific Practical Examination</u></b></p> <p>The candidate is required to assess and evaluate Automated Phased array inspection data selected by the examiner</p>	01	60	70
				12	240	70
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**B12: Phased Array Ultrasonic Testing Data Interpretation (PAUT DI)**

Method: Phased Array Ultrasonic Testing Data Interpretation (PAUT DI)						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds	<p align="center"><u>Eligibility</u></p> <p>Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in AUT Data Interpreter provided candidate has to appear and pass a 40 questions General paper in Ultrasonic Testing.</p>			
			<p><b>Specific (Multiple Choice Questions)</b></p>	20	60	70
			<p><u>General Practical Examination</u></p> <p>The candidate is required to assess and evaluate PAUT data from a typical production run for accuracy and completeness</p> <p><u>Specific Practical Examination</u></p> <p>The candidate is required to assess and evaluate Phased array inspection data selected by the examiner (6 Scanned images)</p>	06	240	70
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**B13: Time of Flight Diffraction Data Interpretation (TOFD DI)**

Method: Time of Flight Diffraction Data Interpretation (TOFD DI)						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds	<p align="center"><u>Eligibility</u></p> <p>Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in AUT Data Interpreter provided candidate has to appear and pass a 40 questions General paper in Ultrasonic Testing.</p>			
			<p><b>Specific (Multiple Choice Questions)</b></p>	20	60	70
			<p><b>General Practical Examination</b></p> <p>The candidate is required to assess and evaluate TOFD ultrasonic data from a typical production run for accuracy and completeness</p> <p><b>Specific Practical Examination</b></p> <p>The candidate is required to assess and evaluate automated Phased array inspection data selected by the examiner (6 scanned images)</p>	05	150	70
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**B14: Visual Testing**

Method: Visual Testing						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Multisector (Weld, Casting Forging, Wrought and Tubes)	General (Multiple Choice Questions)	40	80	70
			Specific (Multiple Choice Questions)	30	90	70
			<b>Practical Examination</b> The candidate is required to test and report on one specimen selected by the examiner from each product sector (welds (in plate, pipe or T-joint), castings, Forging, Tubes and wrought products). Candidate can choose any product sector combinations ranging from 3 to 5	03 / 05	60 per sample	70
			<b>Instruction Writing</b> The candidate shall write an NDT instruction on a weld/casting/wrought suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	3	Multisector	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include at least one volumetric test method.	60	120	70
			<b>MAIN METHOD</b>			
			<b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought	30	60	70
<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	20	60	70			
<b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	01	240	70			
Examination Syllabus: ReferQP25			Reference Literature: ReferQP25			

**B15: Full matrix capture & Total Focussing Method**

Method: Full Matrix Capture & Total Focussing Method																		
S. No	Level	Sector	Examination Requirements															
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)												
01	2	Welds	<p align="center"><b><u>Eligibility</u></b></p> <p>Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in FMC-TFM provided candidate has to appear and pass a 40 questions General paper in Ultrasonic Testing.</p>															
			<p><b><u>Specific (Multiple Choice Questions)</u></b></p>	30	90	70												
			<p><b><u>Practical Examination</u></b></p> <p>Assembly and Functional check of the FMC-TFM equipment, including process and encodes.</p> <p><b><u>Specific Practical Examination</u></b></p> <p><b><u>Data Acquisition</u></b></p> <p>Production of complete data files from three samples selected by the examiner (one from each group below), including setup and preparation of the specimen and visual examination, scan plans, carrying out tests, post test procedures, collecting and storing test data. The candidate shall demonstrate FMC-TFM, features for data acquisition and data processing. Weld preparation should include double-V and single-V configurations, with varying wall thicknesses.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="3">Group 3.1 Butt welds in plate (one sample to be attempted)</th> </tr> <tr> <th>Category</th> <th>Thickness</th> <th>Type of weld</th> </tr> </thead> <tbody> <tr> <td>3.1.2</td> <td>6-15 mm</td> <td>Deposited from one side of the plate</td> </tr> <tr> <td>3.1.3</td> <td>Over 15 mm</td> <td>Deposited from both sides of the plate</td> </tr> <tr> <td>3.1.4</td> <td>Over 15 mm</td> <td>Deposited from one side of the plate</td> </tr> </tbody> </table> <p><b><u>Data Analysis</u></b></p> <p>Examination and assessment and analysis of the three datafiles from the above samples,</p>	Group 3.1 Butt welds in plate (one sample to be attempted)			Category	Thickness	Type of weld	3.1.2	6-15 mm	Deposited from one side of the plate	3.1.3	Over 15 mm	Deposited from both sides of the plate	3.1.4	Over 15 mm	Deposited from one side of the plate
Group 3.1 Butt welds in plate (one sample to be attempted)																		
Category	Thickness	Type of weld																
3.1.2	6-15 mm	Deposited from one side of the plate																
3.1.3	Over 15 mm	Deposited from both sides of the plate																
3.1.4	Over 15 mm	Deposited from one side of the plate																
				03	120 per sample	70												

			using appropriate viewing software. Candidates shall complete a test report with the results in a prescribed format which indicates defect location and size. The report shall also include the characterisation (size and position of defects in relation to a known datum/s) and evaluation, echo dynamic characterisation. The report shall include detection of mandatory discontinuities.	<b>03</b>		<b>70</b>
			<b>Instruction Writing</b> The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.	<b>01</b>	<b>120 per sample</b>	<b>70</b>
<b>02</b>	<b>3</b>	<b>Welds</b>	<b>Eligibility</b>			
			Candidate has to possess a valid ISO 9712 Level 3 in UT duly recognised by the CB. If the candidate the ISO 9712 Level 3 from IANDT he is eligible for FMC-TFM Level 3. If the candidate possess an ISO 9712 Level 3 from a CB duly recognised by IANDT then the candidate has to appear for the PART B section of BASIC. Candidate with ASNT Level 3 with ISO9712 Level 2 in FMC-TFM is eligible for ISO 9712 FMC-TFM Level 3. <b>In that case candidate needs to appear for PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	<b>10</b>	<b>30</b>	<b>70</b>
			<b>MAIN METHOD</b>			
			PART E: Level 3 knowledge relating to the specific test method for which certification is sought. (Multiple choice questions)  PART F: Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	<b>20</b>	<b>60</b>	<b>70</b>
				<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: ReferQP25</b>			<b>Reference Literature: ReferQP25</b>			

**B16: Alternating Current Field Magnetization (ACFM)**

Method: Alternating Current Field Magnetization (ACFM)						
S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds	<b>General (Multiple Choice Questions)</b>	40	80	70
			<b>Specific (Multiple Choice Questions)</b>	20	60	70
			<b>General Practical Examination</b> In the practical part, the candidate is required to choose the necessary probes and equipment to conduct the test, conduct operational and function checks on equipment and probes and record the results.	01	30	70
			<b>Specific Practical Examination</b> The candidate is required to test and report on two specimens covering butt weld in plate, butt weld in pipe and a T- joint, Cruciform and gusset welds employing ACFM Probes	02	240	70
			<b>Instruction Writing</b> The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	3	Welds	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include at least one volumetric test method.	60	120	70
			<b>MAIN METHOD</b>			

		<p><b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought</p> <p><b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material</p> <p><b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.</p>	<p><b>30</b></p> <p><b>20</b></p> <p><b>01</b></p>	<p><b>60</b></p> <p><b>60</b></p> <p><b>240</b></p>	<p><b>70</b></p> <p><b>70</b></p> <p><b>70</b></p>
<b>Examination Syllabus: Refer QP25</b>			<b>Reference Literature: Refer QP25</b>		



**GENERAL REQUIREMENTS FOR THE QUALIFICATION AND CERTIFICATION OF NDT PERSONNEL IN  
ACCORDANCE WITH THE REQUIREMENTS OF BS EN ISO 9712**

CM01

**B17: Automated Ultrasonic Testing (AUT)**

**Method: AUT (Automated Ultrasonic Girth Weld Inspector)**

S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Welds	<b><u>Eligibility</u></b>			
			Candidate has to possess a valid ISO 9712 Level 2 in UT or ASNT Level 3 in UT. Candidate without valid ISO9712 Level 2 or ASNT Level 3 is eligible to write the ISO9712 Level 2 in AUT provided candidate has to appear and pass a 40 questions General paper in Ultrasonic Testing.			
			<b><u>Specific (Multiple Choice Questions)</u></b>	<b>30</b>	<b>90</b>	<b>70</b>
			<b><u>Practical Examination</u></b> <b><u>Data Acquisition</u></b> The candidate is required to acquire the data from two specimens (of different diameter and thickness using AUT machine after calibrating the equipment using the appropriate cal block. Automated ultrasonic data from a typical production run for accuracy and completeness	<b>02</b>	<b>480</b>	<b>70</b>
			<b><u>Specific Practical Examination</u></b> The candidate is required to assess and evaluate Automated Phased array inspection data of 12 AUT Data Images and need to report the existence of weld discontinuities.	<b>12</b>	<b>240</b>	<b>70</b>
			<b><u>Instruction Writing</u></b> The candidate shall write an NDT instruction on a plate butt weld suitable for Level 1 personnel as selected by the examiner.	<b>01</b>	<b>120</b>	<b>70</b>



**GENERAL REQUIREMENTS FOR THE QUALIFICATION AND CERTIFICATION OF NDT PERSONNEL IN  
ACCORDANCE WITH THE REQUIREMENTS OF BS EN ISO 9712**

**CM01**

<b>02</b>	<b>3</b>	<b>Welds</b>	<b>Eligibility</b>	<b>10</b>	<b>30</b>	<b>70</b>
			<p>Candidate has to possess a valid ISO 9712 Level 3 in UT duly recognised by the CB. If the candidate possess an ISO 9712 Level 3 from a CB duly recognised by IANDT then the candidate has to appear for the PART B section of BASIC. Candidate with ASNT Level 3 in UT with ISO9712 Level 2 in AUT is eligible for ISO 9712 AUT Level 3.</p> <p><b>In that case candidate needs to appear for PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)</p>			
			<b>MAIN METHOD</b>			
			<p>PART E: Level 3 knowledge relating to the specific test method for which certification is sought. (Multiple choice questions)</p> <p>PART F: Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.</p>			
<b>Examination Syllabus: ReferQP25</b>				<b>Reference Literature: ReferQP25</b>		



**GENERAL REQUIREMENTS FOR THE QUALIFICATION AND CERTIFICATION OF NDT PERSONNEL IN  
ACCORDANCE WITH THE REQUIREMENTS OF BS EN ISO 9712**

CM01

**B18: Internal Rotary Inspection System (IRIS)**

**Method: Eddy Current Testing - Tubes**

S. No	Level	Sector	Examination Requirements			
			Examination Section and its Description	Number of Questions / samples	Time allotted (Minutes)	Pass Percentage (%)
01	2	Tubes	<b>General (Multiple Choice Questions)</b>	40	80	70
			<b>Specific (Multiple Choice Questions)</b>	20	60	70
			<b>General Practical Examination</b> In the practical part, the candidate is required to choose the necessary probes and equipment to conduct the test, conduct operational and function checks on equipment and probes and record the results.	01	30	70
			<b>Specific Practical Examination</b> The candidate is required to test and report on two tube bundles using IRIS. (Each Tube Comprises of 10 Tubes, and each Bundle consider as a specimen)	02*	360	70
			<b>Instruction Writing</b> The candidate shall write an NDT instruction for the tube testing suitable for Level 1 personnel as selected by the examiner.	01	120	70
02	3	Tubes	<b>BASIC</b>			
			<b>PART A:</b> Material Science and Process Technology (Multiple Choice Question)	30	60	70
			<b>PART B:</b> Knowledge of the CB system based on ISO9712. (Open Book –MCQ)	10	30	70
			<b>PART C:</b> Knowledge of at least 4 methods of NDT at a Level 2 standard (15 questions per method). The methods shall be chosen by the candidate and shall include atleast one volumetric test method.	60	120	70



**GENERAL REQUIREMENTS FOR THE QUALIFICATION AND CERTIFICATION OF NDT PERSONNEL IN  
ACCORDANCE WITH THE REQUIREMENTS OF BS EN ISO 9712**

**CM01**

			<b>MAIN METHOD</b>			
			<b>PART D:</b> Level 3 knowledge relating to the test method for which certification is sought	<b>30</b>	<b>60</b>	<b>70</b>
			<b>PART E:</b> Application of the NDT Method in the sector concerned using the applicable codes and standards. Relevant sections of the codes and standards may be provided as reference material	<b>20</b>	<b>60</b>	<b>70</b>
			<b>PART F:</b> Drafting of an NDT procedure in the relevant method and sector. The applicable codes and standards and specifications shall be available during this part of the examination.	<b>01</b>	<b>240</b>	<b>70</b>
<b>Examination Syllabus: Refer QP</b>				<b>Reference Literature: Refer QP</b>		

\*A Bundle of 10 tubes is considered as a single specimen. 2 Bundles have to be examined by the candidates .



**GENERAL REQUIREMENTS FOR THE QUALIFICATION AND CERTIFICATION OF NDT PERSONNEL IN  
ACCORDANCE WITH THE REQUIREMENTS OF BS EN ISO 9712**

**CM01**

**Annex C: Structured credit system for Renewal Level 1, 2 and 3 and for Level 3 Recertification**

**Table C.1**

Item	Activity	Level 1			Level 2			Level 3		
		Points granted per activity	Maximum number of points per year of activity	Maximum Number of points over 5 years of Activity	Points granted per activity	Maximum number points year of activit	Maximum number of points over 5 years of activity	Points granted per activity	Maximum number of points per year of activity	Maximum number of points over 5 years of activity
<b>Part A</b>										
1	Performance of NDT Activities <sup>a</sup>	2 / day	25	95	2 / day	25	95	2 / day	25	95
2	Completion of theoretical training in the method	1 / day	5	15	1 / day	5	15	1 / day	5	15
3	Completion of practical training in the method	2 / day	10	25	2 / day	10	25	2 / day	10	25
4	Delivery of practical or theoretical training in NDT in the method considered	N/A	N/A	N/A	1 / day	15	75	1 / day	15	75
5	Participation in research activities in NDT field or for engineering of NDT (see <a href="#">Annex E</a> )	1 / week	15	60	1 / week	15	60	1 / week	15	60
<b>Part B</b>										
6	Participation to a technical seminar/paper in the field of the method or technique	1 / day	2	10	1 / day	2	10	1 / day	2	10
7	Presenting a technical seminar/ paper in the field of the method or technique	1 / presentation	3	15	1 / presentation	3	15	1/presentation	3	15
8	Current individual membership in NDT or NDT related society	1 / membership	2	5	1 / membership	2	5	1 / membership	2	5



**GENERAL REQUIREMENTS FOR THE QUALIFICATION AND CERTIFICATION OF NDT PERSONNEL IN  
ACCORDANCE WITH THE REQUIREMENTS OF BS EN ISO 9712**

**CM01**

9	<b>Technical oversight and mentoring of NDT personnel/ trainee in the relevant method</b>	N/A	N/A	N/A	2 / mentee	10	30	2 / mentee	10	40
10	<b>Participation or convenorship in standardization and technical committees</b>	N/A	N/A	N/A	1 / committee	3	15	1 / committee	4	20
11	<b>Performing a technical ND role within a certification body</b>	N/A	N/A	N/A	2/activity	10	30	2/activity	10	40

NOTE Where the term “year(s)” is noted in this table, this is specified as a certification year and not as a calendar year.

<sup>a</sup> See [C.2](#) for specific details of this activity.

## **C.2 Performance of NDT activities**

C.2.1 In assessing this activity type, the certification body should consider the responsibilities of employers as specified in 5.5 and the duties specified in Clause 6. The following work activities may be considered as acceptable:

- a) knowledge and understanding of the customer's specifications and the inspection standards;
- b) verification of operating conditions or setting up of the test equipment, successful performance of NDT, satisfactory reporting;
- c) performance as a Level 3 examiner.

C.2.2 In order to assess the activities specified in C.2.1, the certification body may request from the individual seeking renewal or Level 3 recertification documentation and/or evidence to demonstrate compliance including, but not limited to, the following:

- a) Confirmation of the candidates work activities by a certified individual or referee;
- b) Confirmation of the level of activity of the individual in the given method;
- c) Confirmation of formal documented competency or proficiency test(s) in the given method;
- d) Dates and protocol numbers of reports;
- e) Details of any job specific training received;
- f) Confirmation of employer's authorization to operate;
- g) Summary of activities and outputs;
- h) job/position description;
- i) annual/regular employer assessments of performance/competence;
- j) Sample NDT reports;
- k) Sample procedure(s) developed (Level 3 only);
- l) Customer feedback;
- m) Confirmation of adherence to code of ethics from employer;
- n) Confirmation of compliance with additional national requirements (i.e., radiation safety).

Other evidence may be deemed acceptable or be requested by the certification body. The certification body may require that some or all of the submitted evidence be confirmed by the employer.

**Annex D: Grading practical examination elements**

**D.1 Grading of Level 1 and Level 2 practical examination element — percentile weighting**

**Table D.1 — Percentile weighting for practical examination element for Levels 1 and 2**

Subject	% maximum (Level 1)	% maximum (Level 2)
<b>Item 1 — Knowledge of the NDT equipment and/or NDT media:</b>		
a) system and/or media knowledge and control;	10	5
b) validity of verifications and/or media.	10	5
<b>Total</b>	<b>20</b>	<b>10</b>
<b>Item 2 — Application of the NDT method:</b>		
a) preparation of the specimen (i.e. surface condition), including visual examination;	5	2
b) for Level 2, the selection of the NDT technique and determination of operating conditions;	n/a	10
c) setting up of the NDT apparatus and performance of the test;	25	12
d) post test procedures (i.e. demagnetization, cleaning, preservation).	5	2
<b>Total</b>	<b>35</b>	<b>26</b>
<b>Item 3 — Detection of discontinuities and reporting:</b>		
a) detection of mandatory reportable indications;	20	18
b) characterization of indications (if applicable with respect to the test method: type, position, orientation, apparent dimensions, etc.);	15	18
c) Level 2 evaluation against code, standard, specification or procedure criteria;	n/a	18
d) production of the test report.	10	10
<b>Total</b>	<b>45</b>	<b>64</b>
<b>Total items 1, 2 and 3</b>	<b>100</b>	<b>100</b>

D.2 Weighting of Level 3 main method examination element item F

Table D.2 — Percentile weighting for the Level 3 NDT procedure examination

Subject	% maximum
<b>Item 1 — General:</b>	
a) scope (field of application, product);	2
b) document control;	2
c) normative references and complementary information.	4
<b>Sub-total</b>	<b>8</b>
<b>Item 2 — NDT personnel</b>	<b>2</b>
<b>Item 3 — Materials and equipment:</b>	
a) main NDT equipment (including defining verification status and pre-test serviceability checks);	10
b) ancillary equipment. Reference and calibration blocks, consumables, measuring equipment, viewing aids, etc.	10
<b>Sub-total</b>	<b>20</b>
<b>Item 4 — Test piece:</b>	
a) physical condition and surface preparation (temperature, access, removal of protective coatings, roughness, etc.);	1
b) description of area or volume to be tested, including reference datum;	1
c) discontinuities sought.	3
<b>Sub-total</b>	<b>5</b>
<b>Item 5 — Performance of the test:</b>	
a) NDT method(s) and technique(s) to be used;	10
b) setting up the apparatus;	10
c) conducting the test (including reference to NDT instructions);	10
d) characterization of discontinuities.	10
<b>Sub-total</b>	<b>4</b>
<b>Item 6 — Acceptance criteria</b>	<b>7</b>
<b>Item 7 — Post-test procedure:</b>	
a) disposition of non-conforming product (labelling, segregation);	2
b) restoration of protective coatings (where required).	1
<b>Sub-total</b>	<b>3</b>
<b>Item 8 — Production of the test report</b>	<b>5</b>
<b>Item 9 — Overall presentation</b>	<b>1</b>
<b>Total</b>	<b>100</b>