# IANDT
# Certification Manual

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## INTERNATIONAL ACADEMY OF NDT

**CONTENTS**

**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. Details of the sector, method and levels are described in this document.

- NDT of Castings
- NDT of Welds
- NDT of Wrought Products and Forgings

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

**1. Scope**

1.1. This document describes a system for the qualification and certification of personnel who perform industrial Non-Destructive Testing.

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)

EN ISO 9712:2012 : Non- destructive testing – Qualification and certification of 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 25108and 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.

*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*.*

3.4. 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.

3.5. Candidate - individual seeking qualification and certification and who gains experience under the supervision of suitably qualified personnel.

3.6. 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

3.7. 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

*3.7.1. Note: The issuing of a certificate does not authorize the holder to operate; this authority can only be given by the employer.*

3.8. 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.

3.9. Employer - The organisation for which a candidate or holder of certification works on a regular basis. An employer may also be a candidate.

3.10. 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.

3.11. General Examination –a written examination, at Level 1 or 2, concerned with the principles of an NDT method.

3.12. 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.

*3.12.1. 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.*

3.13. 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.

3.14. 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.

*3.14.1. 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.*

3.15. 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.

3.16. 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

3.17. NDT Instruction - A written description of the precise steps to be followed in testing to an established standard, code, specification or *NDT procedure*.

3.18. NDT Technique - A specific way of utilizing an NDT method (for example, ultrasonic immersion technique).

3.19. 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.

3.20. NDT Method - Discipline applying a physical principle in Non-Destructive Testing (for example, Ultrasonic Testing).

3.21. 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.

3.22. 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.

3.23. 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.

3.24. Qualification - Evidence of training, professional knowledge, skill and experience as well as physical fitness to enable NDT personnel to properly perform NDT tasks

3.25. Qualification Examination - An examination administered directly by the CB, which assesses the general, specific and practical knowledge and skill of the candidate.

*3.25.1. Note: No documentary material, other than that provided by the examination centre, 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.*

3.26. 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

3.27. 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.

3.28. 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).

3.29. 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.

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

3.30. 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.

3.31. Specification - document stating requirements

3.32. 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.

3.33. 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.

3.34. 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.

3.35. 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.

3.36. Written Practice – documented procedure detailing the employer's requirements for qualification, certification and authorization of NDT employees.

3.37. Renewal- Procedure for revalidation of a certificate without examination at any time upto five years after success in an initial, supplementary or recertification examination

3.38. 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 |
| BRS | Basic Radiation Safety |
| CB | Certification Body |
| ET | Electromagnetic Testing (Eddy Current Testing) |
| 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 PCNI 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.

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. approve Examination Centres (AECs) where qualification examinations are conducted.

5.2. The employer shall

5.2.1. attest to the validity of the personal information provided by the candidate, including the declaration of education, training and experience required for eligibility.

5.2.2. where required by regulatory requirements and codes, give the authorisation to operate in writing by the employer in accordance with a Written Practiceor 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.

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

5.2.4. with regard to certificated persons, be responsible for:

5.2.4.1. issuing the operating authorisation

5.2.4.2. verification of visual acuity in accordance with CB requirements, and

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

5.1. Candidates for certification shall:

5.1.1. provide verifiable documentary evidence in a form acceptable to the CB (a correctly completed form F-77 satisfies this requirement) that experience has been gained under the supervision of Appropriately Qualified Personnel (see definition at 3.4).

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

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

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

5.2. Certificate holders shall

5.2.1. undertake to abide by the Code of Ethics published by CB

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

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

**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.

Level 1 personnel have not demonstrated competence in the choice of test method or technique to be used, nor for the assessment, characterisation or interpretation of test results.

6.2. 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 into NDT instructions;
- set up and verify equipment settings;
- perform and supervise tests;
- interpret and evaluate results according to applicable standards, codes or specifications;
- prepare written NDT instructions;
- carry out and to supervise all level 1 duties;
- provide guidance for personnel at or below level 2, and
- organise and report the results of non-destructive tests.

6.3. 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 (see clause 6.3.3), carry out all level 1 and level 2 duties, and
- provide guidance and supervision at all levels.

6.3.1. 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 test criteria where none are otherwise available;
- a general familiarity with other NDT methods.

6.3.2. Level 3 certificated personnel may be authorised to carry out, manage and supervise qualification examinations on behalf of the CB. Where Level 3 duties require the individual to apply routine NDT by a method or methods within a particular product or industry sector, the CB strongly recommends that industry demand that this person should hold and maintain Level 2 certification in the applicable method(s) and sector(s).

6.4. The range and scope of certification available at each level is defined in the relevant appendix to these general requirements.

## 7. Training

7.1. 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 through an ATO approved by IANDT.

7.2. 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 ISO9712 shall be acceptable and considered as a completion of qualification training.

7.3. Where qualification examinations are to be conducted for candidates in an overseas location and CB validated training is not available through an existing ATO, any training that covers the relevant syllabus may be granted interim recognition for up to two years as meeting the CB's requirements for pre-certification training.

7.4. 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[5]**

| NDT Method | Level 1 hours[2,5,6,7] | Level 2 hours[1,2,5,6,7] | Level 3 hours[5,7] |
|---|---|---|---|
| ET[4] | 40 | 48 | 48 |
| PT | 16 | 24 | 24 |
| MT | 16 | 24 | 32 |
| RT[3,4] | 40 | 80 | 40[9] |
| RI | N/A | 56 | N/A |
| UT[4] | 40 | 80 | 40[9] |
| VT | 16 | 24 | 24 |
| BRS | 16 | N/A | N/A |
| RPS | N/A | 24 | N/A |
| PAUT | 40 | 80 | 40 |
| TOFD | 40 | 40 | 40 |
| Basic knowledge | (direct access to Level 3 examination parts A, B and C) | | 80[8] |
| UT (supplementary Node and Nozzle) | N/A | 16 | N/A |
| AUT Data Interpretation | N/A | 60 | N/A |
| PAUT Data Interpretation | | | |
| TOFD Data Interpretation | | | |

***NOTE 1**. Direct access to Level 2 requires the total number of hours shown in Table 1 for Level 1 and Level 2, and direct access to Level 3 requires the total number of hours shown in Table 1 for levels 1, 2 and 3.Up to one third of the total specified in this table may take the form of OTJ 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 hours 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 recognised 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 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 72 hours maximum, may be granted based on holding:*

*a) <u>Product Technology</u>*

*The candidate holds a certificate covering:*

| | |
|---|---|
| *a multi-sector* | *- 12 hours* |
| *castings* | *- 4 hours* |
| *welds* | *- 4 hours* |
| *wrought products* | *- 4 hours* |

*b) <u>Level 2 general theory in four NDT methods, one of which is a volumetric method</u>*

*The Level 3 candidate holds Level 2 certification in*

| | |
|---|---|
| *Four NDT methods* | *- 60 hours* |
| *Three NDT methods* | *- 45 hours* |
| *Two NDT methods* | *- 30 hours* |
| *One NDT methods* | *-15 hours* |

***E 9.**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)

**8. Industrial NDT Experience**

8.1. Industrial NDT experience in the appropriate sector may be acquired either prior to or following success in the qualification examination

8.2. In the event that the experience is sought following successful examination, the results of the examination shall remain valid for up to two years.

8.3. 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 AQB prior to examination, or directly to CB prior to the award of certification in the event that experience is gained after examination.

8.4. 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 (months) [a b c d e f] | | |
|---|---|---|---|
| | Level 1 | Level 2 | Level 3[g h] |
| ET | 3 | 9 | 18 |
| MT | 1 | 3 | 12 |
| PT | 1 | 3 | 12 |
| RT | 3 | 9 | 18 |
| UT | 3 | 9 | 18 |
| RI | N/A | 6 | N/A |
| VT | 1 | 3 | 12 |
| PAUT / AUT (DI)/PAUT (DI) / TOFD (DI) | 3 | 9 | 12 |
| TOFD | 3 | 9 | 12 |

[a] Work experience in months is based on a nominal 40 hours/week or the legal week of work. When an individual is working in excess of 40 hours per week, he may be credited with experience based on the total hours, but he shall be required to produce evidence of this experience.

[b] For level 2 certification, work experience consists of time as a level 1. If the individual is being qualified directly to level 2, with no time at level 1, the experience shall consist of the sum of the times required for level 1 and level 2.

[c] Experience duration may be reduced by up to 50 % but shall not be less than one month when the certification sought is limited in application (e.g., automated testing).

[d] Credit for work experience may be gained simultaneously in two or more of the NDT methods covered by this specification, with the reduction of total required experience as follows:

- two testing methods - reduction of total required time by 25 %;
- three testing methods - reduction of total required time by 33 %;
- four or more testing methods - reduction of total time by 50 %.

In all cases the candidate shall be required to show that, for each of the testing methods for which he seeks certification, he has at least half of the time required in Table 2.

[e] Up to 50 % of the practical experience time may be achieved by an appropriate practical course, the duration of which may be weighted by a maximum factor of five (5) This procedure shall not be used in conjunction with that described in c. The course shall be concentrated on practical solutions of frequently occurring testing problems, and the programme shall be approved by the CB.

[f] Maximum reduction may be 50 %

[g] For level 3 certification, work experience consists of time as a level 2. If the individual is being qualified directly to level 3, with no time at level 2, the experience shall consist of the sum of the times required for level 2 and level 3 andno reduction in the period of experience specified shall be allowed.

[h] These values assume that candidates have successfully completed a technical school or at least two years of engineering or science study at an accredited college or university. In the event that this is not the case, the duration has to be multiplied by a factor of 2.

## 9. Vision Requirements

9.1. 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.

9.2. 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.

9.2.1. 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;

9.2.2. 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.*

**10. Qualification Examination**

10.1. General

An examiner shall not be permitted to examine any candidate that he has trained for the examination, or who is employed in the same facility as the candidate.

*Note: only CB authorised examiners and examination invigilators within the Certification Scheme, and all examination personnel are required to declare any interest in a candidate that presents for examination. In case of doubt regarding maintenance of impartiality, examiner shall consult with the Head of Certifications before conducting examinations.*

10.2. Examination Application

10.2.1. Initial enquiries to the CB may be by telephone. Formal applications must be made on an application form (F-77) available direct from the CB. No examination appointment can be considered confirmed until a correctly completed application form has been received.

10.2.2. Application forms ask for specific details on experience and training to the published syllabus and must be signed to the effect that these details are correct. In the event of a false statement being discovered, any certification awarded as a result of the examination will be null and void.

10.2.3. Applications dependent upon the individual holding appropriate certification must be supported by acceptable evidence of such certification; photocopies <u>are</u> acceptable at this stage, but original certificates, together with proof of identity, shall be presented to the examination invigilator on the date of examination. failure to comply with this clause will result in a refusal to examine.

10.2.4. The location of all examination centres is published in the IANDT website which covers the scope of examinations, contact information and other allied details for the prospective applicant.

10.2.5. Provision is made wherever possible for candidates with a disability which may affect their ability to complete qualification examinations. For example, up to 25% additional time may be allowed in examinations for candidates suffering from dyslexia. The candidate is responsible for bringing his or her disability to the attention of the CB.

10.3. Examination Equipment and Documentation

10.3.1. The CB will provide all necessary NDT equipment and reference standards.

10.3.2. Candidates must <u>not</u> be in possession of any reference documentation or equipment, other than that provided by the CB, during a qualification examination.

10.3.3. Provided security of examination materials can be guaranteed, candidates will be allowed the use of an CB provided PC or lap-top computer in the NDT instruction and NDT procedure writing section of the qualification examination. On no account will the use of a candidate's own computer be permitted during a qualification examination.

10.3.4. The use of a pocket calculator is permissible in qualification examinations provided that it is of a type that does not permanently store programs, formulae or data relevant to NDT.

10.3.5. Mobile telephones are not permitted in any examination area.

10.4. Qualification Examination Content - Levels 1 and 2

10.4.1. Examination sections

10.4.1.1. The qualification examination consists of written general and specific parts, and a specific practical examination covering a given NDT method applied to specimens representative of products in one or more industrial sectors.

10.4.1.2. The general and specific written examinations are comprised mainly of multi-choice answer questions (exceptions being the radiation protection and the Level 3 recertification examinations).

10.4.1.3. The time allowed to the candidates for completion of each examination shall be based upon the number and difficulty of the questions. The average time allowed shall be no less than one minute nor longer than two minutes per multiple choice question. The time allowed for examinations comprised of narrative answer questions varies but is specified on the examination paper presented to the candidate.

10.4.1.4. The practical examination is of sufficient duration, complexity and scope adequately to verify the candidate's ability to apply the NDT method to real test situations. The time allowed for the practical examination is detailed in the appropriate appendix to these general requirements.

10.4.2. General Examination

10.4.2.1. The general examination includes only validated questions selected in an unpredictable way from the collection of general questions approved by the CB at the time of the examination. The number of questions in each NDT method general examination is as defined in *Table 3*.

10.4.2.2. Candidates appearing for Radiography testing (all Levels ) shall hold a valid radiographer / Radiation safety officer qualification certificate issued by National regulatory body, considered meeting the requirements of BRS.

Table 3. Numbers of general questions

| NDT Method | Level 1 | Level 2 |
|---|---|---|
| ET | 40 | 40 |
| PT | 30 | 30 |
| MT | 30 | 30 |
| RT | 40 | 40 |
| RI | N/A | 40 |
| UT | 40 | 40 |
| VT | 30 | 30 |
| BRS | 30 | N/a |
| RPS | N/a | 20 plus 4 narrative |

10.4.3. Specific Examination

10.4.3.1. The specific examination includes only validated questions selected in an unpredictable way from the collection of specific questions approved by the CB at the time of the examination.

10.4.3.2. All Level 1 Specific Theory Papers have 20 questions. All Level 2 Specific Theory Papers have 20 questions minimum. If the specification covers two or more sectors, the minimum number of questions shall be at least 30, evenly spread between industrial or product sectors concerned.

10.4.3.3. During the specific examination, the candidate shall be required to answer multiple-choice questions, including questions involving calculations, written procedures and questions on product technology, codes, standards and specifications.

10.4.3.4. If the specific examination covers two or more product sectors, the questions will be evenly spread between the sectors concerned

10.4.4. Practical Examination (see QP23 for information on grading)

10.4.4.1. The practical examination is designed to ascertain the ability of the candidate to:

- make the required settings;
- operate the test equipment properly;
- perform testing of prescribed components relating to the industrial sector concerned;
- record and to analyse the resultant information to the degree required according to written instructions for Level 1 or a code, standard, specification or a procedure for Level 2.

10.4.4.2. For Level 2 the candidate will demonstrate the ability to prepare written instructions for Level 1. This will be an open book examination where the candidate is provided with the relevant standard, code or specification, together with a copy of QP23.

10.4.4.3. The Level 1 candidate will follow the NDT instruction(s) provided by the examiner, while the Level 2 candidate will select the applicable NDT technique and determine the operating conditions related to a given code, standard, or specification.

10.4.4.4. The specimens used for the practical test will be selected from a collection of representative specimens approved by the CB. Each test specimen shall contain one or more of the discontinuities defined in CEN/TS 15053.

10.4.4.5. The number of areas or volumes to be tested and the time allowed during the practical examination will be adequate to the level and NDT method, and to the sector concerned, and is defined in the relevant appendix to this specification.

10.4.4.6. Specimens will be uniquely identified and have a master report which includes all of the equipment settings used to detect specified discontinuities contained within the specimen. The master sheet is compiled based upon at least two independent tests, and is validated by an authorised 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.

10.4.4.7. Specimens contain discontinuities characteristic of those that occur during manufacturing or in service. They may be natural, artificial or implanted. For practical radiography, the specimen will not necessarily contain discontinuities since these will be exhibited in the radiographs for interpretation.

10.4.4.8. For those examinations where discontinuities are normally replaced by artificial sources or data, the level 1 candidate shall demonstrate the ability to set up the equipment, verify its sensitivity and record the test data; the level 2 candidate shall also demonstrate the ability to interpret and evaluate previously recorded test data.

10.5. Qualification Examination Content - Level 3

10.5.1. General

10.5.1.1. All candidates for level 3 certification in any NDT method shall have successfully completed (with a grade of ≥ 70 %) the practical examination for level 2 in the relevant sector and method, except for the drafting of NDT instructions for level 1 (see 10.5.3.3).

10.5.1.2. A candidate who is level 2 in the same product sector, or has successfully passed a level 2 practical examination for the method in an industrial sector (e.g. Aerospace) in which the product is commonly tested (e.g. castings and wrought products), is exempt from passing again the level 2 practical examination. 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.

10.5.2. Basic Examination.

10.5.2.1. The basic examination shall be passed first and the result will remain valid, provided that the first main method examination is passed within five years after passing the basic examination. A candidate holding a valid level 3 certificate is exempt from the need to retake the basic examination.

10.5.2.2. Examination questions shall be selected from the current collection of questions approved by the CB at the time of the examination. The number of questions set will be as defined in Table 4.

10.5.2.3. All the questions are of the multiple choice answer type. The total time allowed for this examination is 3 hours.

Table 4: Number of Basic examination questions

| Part | Examination | Number of questions |
|---|---|---|
| A | Materials technology and science, including typical defects in a wide range of products including castings welds and wrought products. | 30 |
| B | Qualification and certification procedure in accordance with this document | 10 |
| C | 15 general questions at Level 2 standard for each of four NDT methods chosen by the candidate, including at least one volumetric NDT method (UT or RT). | 60 |

10.5.3. Main Method Examination

10.5.3.1. This written examination shall assess the candidate's knowledge of the main method subjects using the minimum required number of multiple choice questions approved by the CB at the time of the examination. The number of questions shall be as defined in Table 5.

10.5.3.2. The duration of the examination is 1 hour for part D, 40 minutes for part E, and 4 hours for part F.

10.5.3.3. Level 3 candidates not holding appropriate level 2 certification shall pass a relevant level 2 practical examination (except that they need not draft an NDT instruction) as detailed at Annex A (certification available).

10.5.3.4. The successful candidate for Level 3 certification may be issued Level 2 certification in the same NDT method and sector without further examination provided the relevant Level 2 practical examination was passed in order to gain the Level 3 certification concerned. The resultant Level 2 certification will be valid for only those categories in which success in the practical examination was achieved and will expire on the same date as the related Level 3 certification and the procedure for revalidation will be the same as for any level 2 certificate. Candidates seeking the issue of a Level 2 certificate under the procedure defined in this clause will submit their request using appropriate to issue L2 certificate (Request for L2 issue to L3 holder).

Table 5: Main Method examination

| Part | Subject | Number of questions |
|---|---|---|
| D | Level 3 knowledge relating to the test method applied | 30 |
| E | Application of the NDT method in the sector concerned, including the applicable codes, standards, and specifications. This may be an open book examination in relation to codes, standards, and specifications. | 20 |
| F | Drafting of one or more NDT procedures in the relevant sector. The applicable codes, standards, and specifications shall be available to the candidate. | |

**11. Examination Exemptions**

11.1. Candidates in initial examinations are not required to attempt an examination part in which they have already achieved success during the process of gaining certification, so long as the subject examination part has (or had) the same (or a greater) scope as that part for which an exemption is claimed, and the resultant certification remains valid.

11.2. 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).

11.3. Existing level 3 certificate holders wishing to gain level 2 certification in the same sector and NDT method, will be exempt all examination parts other than the level 2 practical examination.

11.4. 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 need to make a formal request and need to get the exemption from the CB before appearing for the examination.

11.5. 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.

11.6. 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.

11.7. Level 3 candidates who hold valid level 2 in the same sector or have successfully passed a level 2 practical examination for the method in an industrial sector are exempt from passing again the level 2 practical examination. 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.

11.8. 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). An administrative charge will be made where the CB requires an evaluation of alternative certification.

11.9. 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.

**12. Conduct of Examinations**

12.1. General

12.1.1. All examinations shall be conducted in the IANDT Head quarters, Chennai or in any of the AEC's of IANDT.

12.1.2. At the time of examination, the candidate shall have in his or her possession valid proof of identification and an official notification of the examination, which shall be shown to the examiner or invigilator upon demand.

12.1.3. Candidates must not be in possession of any equipment or documentation, other than that provided by the examination centre with the authority of an authorised examiner, during a qualification examination.

12.1.4. Any candidate who, during the course of the examination, does not abide by the examination rules or who perpetrates, or is an accessory to, fraudulent conduct shall be excluded from further participation.

12.1.5. Candidates 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.

12.1.6. Examination questions shall be validated by the CB. The examination papers shall be validated and approved by the examiner and the grading shall be done in accordance with the procedure approved by the CB.

12.1.7. An examiner shall not be permitted to examine any candidate;

a) That he has trained for the examination for a period of 2 years from the date of the conclusion of the training activities

b) Who is working (permanently or temporarily) in the same facility as the examiner.

12.2. Preparation and conduct of examinations

12.2.1. All qualification examinations shall be prepared, and supervised by authorised examiners, and conducted in AECs established, approved and monitored by the CB

12.2.2. Examinations shall be invigilated by an examiner, or by one or more trained and authorised invigilators placed under the responsible examiner's control.

**13. Grading of Examinations**

13.1 The pass mark for each examination part, and for levels 1 and 2, for each examination specimen tested, is 70%.

13.2 Grading of practical; examinations is detailed in Grading procedure QP-23.

13.3 To be eligible for certification all candidates must achieve a score of no less than 70% in the general, specific and practical examination parts.

13.4 The Level 3 Main Method examination shall not be graded until such time as the candidate has been successful in the Level 3 Basic examination.The pass mark for each examination partis 70%.

**14. Re-examination**

14.1. A candidate who fails to obtain the pass grade for any examination part (general, specific or practical), may be re-examined twice in the failed part(s), provided the re-examination takes place not sooner than one month, unless further training acceptable to the CB (see 7.2) is satisfactorily completed, not later than two years after the original examination.

14.2. A candidate who fails all permitted re-examinations shall apply for and take the initial examination according to the procedure established for new candidates.

14.3. A candidate whose examination results have not been accepted for reason of fraud or unethical behaviour shall wait at least 12 months before re-applying for examination.

**15. Publication of Examination Results**

15.1. All candidates will be issued with a standard examination results notice by the CB, normally within 21 days of completion of examination, provided all examination fees have been paid.

15.2. A copy of the results notice will be sent to the organisation paying the examination and certification fees, and the CB will issue certification to candidates fulfilling all pre-requisites (training, experience, satisfactory vision and success in the relevant examination) for certification.

15.3. Candidates who have met all requirements for certification with the exception of having the required minimum experience will be advised by the certification Records Office on how to record experience gained under Appropriately Qualified Supervision. Applications for certification post experience are made directly to the CB Records Office on form F-79

15.4. Candidates who fail any part of the examination will be provided with brief reasons for failure on this notice.

**16. Certification**

16.1. Successful candidates will be issued a certificate of competence, which indicates that all conditions for certification, as detailed in the present specification document, are met. Issue of certification normally takes place within 30 days from the date of the examination. However, where a candidate for certification has achieved a pass in all relevant examination parts, but has not yet satisfied the pre-requisite experience and vision requirements, the issue of certification may be deferred for up to two years from the date of success in the qualification examination.

16.2. Once the CB Records Office is in possession of evidence that all pre-requisites (training, experience, satisfactory vision and success in the relevant qualification examination) have been satisfied, a certificate stating the level and category awarded will be published.

16.3. The record of certification and/or corresponding wallet card bears:

- the family name and forename of the certificated individual;
- the date of certification;
- the date upon which certification expires;
- the level of certification;
- Reference to this international standard
- the NDT method(s);
- the applicable sector(s);
- the specific scope of the competence;
- a unique personal identification number;
- the signature of the certificated individual;
- a photo of the certificated individual (on the certificate or a wallet card).
- IANDT Seal on the certificate and laminated ID card
- The signature of the designated representative of the CB
- A provision endorsement by employer to operate

*NOTE: By issuing the certificate and/or the corresponding wallet card, the CB attests to the qualification of the individual but does not give any authority to operate.*

**17. Validity of Certification**

17.1. The period of validity of the certification is normally of five years from the date of certification, and the expiry date is indicated on the certificate and/or wallet card.

17.2. Where success in the recertification procedure occurs within the 90 days prior to expiry of the certificate, the new certificate will expire five years after the expiry date of the certificate being revalidated. If the renewal or recertification procedure is completed prior to 90 days before expiry, the new certificate will be valid for five years from the completion of that renewal or recertification procedure.

17.3. Certification shall be invalid:

17.3.1. in any industrial sector which is not covered by the certificate (unless the holder successfully completes a supplementary examination for the industrial sector);

17.3.2. at the option of the CB after reviewing evidence of unethical behaviour (see F-71 –Code of Ethics for certificate holders);

17.3.3. if examination or certification fees are not paid when due;

17.3.4. if the individual fails to satisfy the criteria for visual acuity and colour perception;

17.3.5. if a *significant interruption* (see definitions) takes place in the method for which the individual is certificated;

17.3.6. from the date of issue of notification of failure in a recertification examination.

17.3.7. in the case of certification for industrial radiography, if the period since the certificate holder has achieved success in a CB (or recognised equivalent) radiation safety examination exceeds five years;

NOTE: *radiography certification is considered by the CB to be valid in any country where the certificate holder has passed an examination on local radiation safety regulations, and provides to CB evidence of valid radiation safety certification issued by a recognised independent authority in that country.*

17.4. Verification of current certification is available at www.iandtcb.org provided the correct name and personal number of the individual is entered.

**18. Renewal and recertification**

18.1. The procedure for renewal and recertification of level 1 and 2 certificates is detailed in document F-85.

18.2. The procedure for renewal and recertification of level 3 certificates is detailed in document F-84.

18.3. To ensure continuity, it is advisable to submit applications for renewal or recertification at least 56 days prior to certificate expiry. Applications for renewal or recertification after the certificate has expired may be considered (up to one year after expiry), but such applications will be subject to payment of an additional administration fee.

18.4. In the event of failure in a recertification examination, the CB will immediately cancel the certificate concerned, issuing a new record of certification that no longer shows the competence concerned, and sending this with an explanatory letter to the certificate holder. The cancellation of the certificate will not affect the eligibility of the candidate to attempt the one permitted retest within the six month period allowed.

18.5. If renewal is applied for more than 12 months after expiry, recertification by examination shall be required.

18.6. If recertification is applied for more that 12 months after expiry, a complete initial examination - general, specific and practical - for Level 1 and Level 2, and a main method examination for Level 3, including the Level 2 practical, shall be required.

**19. Complaints and Appeals**

19.1. Certificate holders must recognise that personal integrity and professional competence are the fundamental principles on which their testing activities are founded (see also use and misuse of certificates – paragraph 23). Accordingly, it is a condition of certification that certificate holders shall undertake to comply with a code of ethics, which is published as document reference F-71.

19.2. An aggrieved party in a dispute, which considers itself to have reasonable grounds for questioning the competency or ethical behaviour of a certificated individual or his employer, may petition the CB for withdrawal or cancellation of certification (QP-14 clause 5.5). Such a petition must be accompanied by all relevant facts and, if it is the view of the CB that an adequate case has been presented, a full investigation of the circumstances under dispute will be initiated.

19.3. If the petition is substantiated to the satisfaction of the Scheme Committee (or a committee to which has been assigned responsibility for such matters), the certification may be cancelled, or renewal or recertification may be refused, for such period as the Management Committee may decide, unless the holder of certification is successful in a further examination, the content of which will be decided by the Management Committee or it's authorised sub-committee at an ordinary meeting.

19.4. Appeals against certificate cancellation, failure to certify or failure to renew may be made by the candidate or the employer upon application in writing to the Secretary to the Management Committee.

19.5. The Scheme Committee may delegate the process of dealing with complaints and appeals to a properly constituted sub-committee.

**20. Change of Employer**

20.1. Change of employer shall not be cause for recertification.

20.2. Certificates signed by the employer for authorisation purposes must be returned to the CB for re-issue upon change of employer.

**21. Supplementary Examinations**

21.1. Holders of Level 1 or 2 certification who wish to add an additional category (where appropriate) at the same level will attempt a supplementary examination comprised of specific theory and/or specific practical parts.

21.2. Supplementary examinations may only be attempted 56 days or more prior to the expiry of the certificate to be supplemented. This is to allow sufficient time for the publication of results and the retesting of failed supplementary examinations. Under certain circumstances, the 56 day 'rule' may be waived (contact the CB for further information).

21.3. Applicants for level 2 supplementary examinations will be required to submit to the examining CB log sheets showing continuity of employment and in the application of the method in the industry or product sector concerned.

21.4. The pass mark for all supplementary examination parts will be 70%. Refer to the appropriate appendix to this document for specific information.

21.5. One retest of a partly failed supplementary examination will be allowed between thirty days and six months after the initial attempt. Failure of such a retest will result in the candidate being required to pass the whole of the supplementary examination to gain the certification sought.

21.6. In the event of partial failure of a supplementary examination where the retest cannot be completed (for whatever reason) prior to expiry of certification, the candidate will not be allowed a retest of the attempted supplementary examination.

21.7. Any new certification issued as a result of successful supplementary examination will incorporate the previous certification and will be valid for a maximum of 5 years from the date of completion of the first successful attempt at the supplementary examination.

**22. Certification and Examination Records**

22.1. The CB will retain records of certification issued as a result of success in any qualification examination for a minimum period of 11 years. An updated database of certificated personnel, which includes (amongst other things) the name, unique personal identification number and scope of certification held by each individual, is maintained by the CB records office. Verification of the certification status of individual certificated personnel is freely available at www.iandtcb.org

22.2. CB will retain examination records of successful and unsuccessful candidates for a period of 11 years from the date of the examination. Audit of specific individual examination records, which are under the jurisdiction of the CB, may be made available in appropriate circumstances. Contact the CB for further information.

**23. Use and Misuse of Certificates**

23.1. The issue of a certificate indicates that the holder has demonstrated an acceptable level of competence measured by means of the relevant examination conducted at a CB in accordance with the prevailing requirements on the date indicated using a particular set of equipment on a specific product. Certificate holders or employers are not permitted to imply any further degree of competence on the basis of the certificate.

23.2. Certificate holders or their employers must not use or refer to CB certificates, nor the CB logo, nor must they knowingly allow them to be used or referred to by a third party, in a manner that may be considered fraudulent or to bring the Certification Scheme into disrepute. The full conditions of use of the CB logo, or reference to CB certification, are detailed in a separate document (QP-24) available from the CB.

23.3. All certificated personnel are required to keep a register of complaints made against them within the scope of the certificate of competence (see F-71: Code of Ethics for certificate holders).Failure to keep such a register or failure to enter valid complaints in it will be construed as a misuse of the certificate and appropriate penalties will be applied, see below. The register of complaints must be made available to the CB on request.

23.4. The penalty for misuse of certification in all cases is invalidation of the certificate. If the misuse was in the public domain, publication of the transgression may also be undertaken. Any misuse, which appears to be an infringement of the law, will result in the matter being reported to the authorities.

23.5. Certificates are valuable documents which should be kept in a safe place. Any suspicion of forgery or misrepresentation must be reported to the CB. Loss or theft of certificates must be reported to the authorities and to the CB.

23.6. It is required that all certificate holders maintain a log demonstrating continuity in the application of the NDT activity for which they are certificated. Examples of suitable pages for recording details of employment, continuity and surveillance may be carried out through the forms available in F85

23.7. New employers presented with certification should satisfy themselves that the certificate holder has been employed without *significant interruption* (see definitions) on work for which the certificate was granted. It is strongly recommended that the employer request sight of the certificate holder's logbook.

**24. Certification Available:**

Pre and in service testing of Equipment, plants and structures covering the following:

| NDT method | Level | Product category /Sector | Scope |
|---|---|---|---|
| Ultrasonic Testing (UT) | 2,3 | Welds | Butt welds in plate, Pipe, Node and Nozzle |
| Radiography Testing (RT) | 2,3 | Welds | - |
| 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 | - |
| Penetrant Testing (PT) | 2,3 | Multi-sector (c/f/w) | Portable / Fixed Installations |
| Magnetic Particle Testing (MT) | 2,3 | Multi-sector (c/f/w) | Portable / Fixed Installations |
| Phased Array Ultrasonic Testing (PAUT) | 2,3 | Welds | - |
| 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 | 2,3 | Multi-sector (c/f/w) | - |

## CM-01 Annex A

<table>
<tr><th colspan="7">Method : Ultrasonic Testing</th></tr>
<tr><th>S.No</th><th>Level</th><th>Sector</th><th colspan="4">Examination Requirements</th></tr>
<tr><th></th><th></th><th></th><th>Examination Section and its Description</th><th>Number of Questions / samples</th><th>Time allotted (Minutes)</th><th>Pass Percentage (%)</th></tr>
<tr><td rowspan="5">01</td><td rowspan="5">2</td><td rowspan="5">Welds<br><br>(Scope: Butt welds in Plate and Pipe)</td><td>General (Multiple Choice Questions)</td><td>40</td><td>80</td><td>70</td></tr>
<tr><td>Specific (Multiple Choice Questions)</td><td>20</td><td>40</td><td>70</td></tr>
<tr><td><u>General Practical Examination</u><br><br>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.</td><td>01</td><td>60</td><td>70</td></tr>
<tr><td><u>Specific Practical Examination</u><br><br>Group 3.1 Butt welds in plate (one sample to be attempted)<br>Category | Thickness | Type of weld<br>3.1.2 | 6-15 mm | Deposited from one side of the plate<br>3.1.3 | Over 15 mm | Deposited from both sides of the plate<br>3.1.4 | Over 15 mm | Deposited from one side of the plate<br>Group 3.2 Butt welds in pipe (one sample to be attempted)<br>Category | OD (mm) | Wall Thickness<br>3.2.1 | 50-105 | 6 to 15 mm<br>3.2.3 | Over 105 | 6 to 15 mm<br>3.2.4 | Over 105 | Over 15 mm</td><td>01<br><br>01<br><br>01</td><td>60<br><br>150<br><br>150</td><td>PASS<br><br>70<br><br>70</td></tr>
</table>

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Instruction Writing**<br>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** | **Welds (Scope: Nodes and Nozzles)**<br>**Supplementary**<br>**Examination.** | **Group 3.8**<br>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** |
| | | | **Group 3.9**<br>This group covers full penetration node joints. Success must be achieved in one sample and in3.1. and/or 3.2 to obtain certification for this group. | **01** | **150** | **70** |
| **03** | **3** | **Welds** | **BASIC** | | | |
| | | | **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**<br>**60** | **20**<br>**120** | **70**<br>**70** |
| | | | **MAIN METHOD** | | | |
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought | **30** | **60** | **70** |
| | | | **PART E**: 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** | **40** | **70** |
| | | | **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. | **01** | **240** | **70** |

| | |
|---|---|
| **Examination Syllabus : Refer QP25** | **Reference Literature : ReferQP25** |

**CM-01 Annex B**

<table>
<tr><th colspan="6">Method : Phased Array Ultrasonic Testing</th></tr>
<tr><th rowspan="2">S.No</th><th rowspan="2">Level</th><th rowspan="2">Sector</th><th colspan="3">Examination Requirements</th></tr>
<tr><th>Examination Section and its Description</th><th>Number of Questions / samples</th><th>Time allotted (Minutes)</th><th>Pass Percentage (%)</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">2</td><td rowspan="3">Welds</td><td><u>Eligibility</u><br>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.</td><td></td><td></td><td></td></tr>
<tr><td>Specific (Multiple Choice Questions)</td><td>30</td><td>60</td><td>70</td></tr>
<tr><td><u>Practical Examination</u><br>Assembly and Functional check of the PAUT equipment, including process and encodes. Probe “ element check “ to be saved as data file and html report.<br><u>Specific Practical Examination</u><br><u>Data Acquisition</u><br>Productionofcompletedatafilesfromthreesamplesselectedbytheexaminer (one from each group below),including setup and parathion 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>
<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>
<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>
</table></td><td>01<br><br>03</td><td>60<br><br>120 per sample</td><td>70<br><br>70</td></tr>
</table>

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | 3.1.4 \| Over 15 mm \| Deposited from one side of the plate<br><br>**Data Analysis**<br>Examination and assessment and analysis of the three data files 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 included is continuity 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. | **03** | **120 per sample** | **70** |
| | | | **Instruction Writing**<br>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** | **Eligibility** | | | |
| | | | 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.<br>**In that case candidate needs to appear for PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ) | **10** | **20** | **70** |
| | | | **MAIN METHOD** | | | |
| | | | PART E: Level 3 knowledge relating to the specific test method for which certification is sought. (Multiple choice questions) | **20** | **40** | **70** |
| | | | 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. | **01** | **240** | **70** |

| | |
|---|---|
| **Examination Syllabus : ReferQP25** | **Reference Literature : ReferQP25** |

**CM-01 Annex C**

<table>
<tr><th colspan="6">Method : Time of Flight Diffraction Ultrasonic Testing</th></tr>
<tr><th rowspan="2">S.No</th><th rowspan="2">Level</th><th rowspan="2">Sector</th><th colspan="3">Examination Requirements</th></tr>
<tr><th>Examination Section and its Description</th><th>Number of Questions / samples</th><th>Time allotted (Minutes)</th><th>Pass Percentage (%)</th></tr>
<tr><td rowspan="4">01</td><td rowspan="4">2</td><td rowspan="4">Welds</td><td><u>Eligibility</u><br>Candidate has to possess a valid ISO 9712 Level 2 in UT (Either Plate or pipe or both)</td><td></td><td></td><td></td></tr>
<tr><td>Specific (Multiple Choice Questions)</td><td>30</td><td>60</td><td>70</td></tr>
<tr><td><u>Practical Examination</u><br>The candidate is required to optimise a calibration of TOFD ultrasonic equipment</td><td>01</td><td>60</td><td>70</td></tr>
<tr><td><u>Specific Practical Examination</u><br><u>Data Acquisition</u><br>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.
<table>
<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>
<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>
</table>
<u>Data Analysis</u><br>Interprettheresultsoffiverecordedweldscandatafilesselectedbytheexaminerandreportthe results of the inspections in an indicated format, showing the size and location off laws in the welds.</td><td>02<br>05</td><td>120<br>150</td><td>70<br>70</td></tr>
</table>

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Instruction Writing**<br>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** | **Eligibility** | | | |
| | | | 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.<br>**PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ) | **10** | **20** | **70** |
| | | | **MAIN METHOD** | | | |
| | | | PART E: Level 3 knowledge relating to the specific test method for which certification is sought. (Multiple choice questions) | **20** | **40** | **70** |
| | | | 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. | **01** | **240** | **70** |
| **Examination Syllabus : ReferQP25** | | | | **Reference Literature : ReferQP25** | | |

**CM-01 Annex D**

| 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**<br>**(Scope: Butt welds in Plate Pipe and fillet weld T-Joint)** | **General (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>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** |
| | | | **Specific Practical Examination**<br>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** |
| | | | **Instruction Writing**<br>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**<br>**Supplementary Examination.** | **Specific (Multiple Choice Questions)** | **30** | **60** | **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.<br>Permanent Magnets, Electromagnets, Bench Unit: Current Flow, Magnetic Flow, Rigid coil, Threaded Bar | **02** | **60 minutes per sample** | **70** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **03** | **2** | **Multisector (Weld,Casting and Forging)** | **General (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Practical Examination**<br>The candidate is required to test and report on three specimens selected by the examiner from welds (in plate, pipe or T-joint), castings and wrought products. The techniques used will be selected by the examiner from those shown below and may include both fluorescent and black inks.<br>Permanent magnets Electromagnets<br>Bench unit: Current flow, Magnetic Flow, Rigid Coil, Threaded Bar | **03** | **180** | **70** |
| | | | **Instruction Writing**<br>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** |
| **04** | **3** | **Multisector** | **BASIC** | | | |
| | | | **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 at least one volumetric test method. | **10**<br>**60** | **20**<br>**120** | **70**<br>**70** |
| | | | **MAIN METHOD** | | | |
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought | **30** | **60** | **70** |
| | | | **PART E**: 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** | **40** | **70** |
| | | | **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. | **01** | **240** | **70** |

| | |
|---|---|
| **Examination Syllabus : ReferQP25** | **Reference Literature : ReferQP25** |

**CM-01 Annex E**

| 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**<br>**(Scope: Butt welds in Plate Pipe and fillet weld T-Joint)** | **General (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>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** |
| | | | **Specific Practical Examination**<br>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.<br>Water washable<br>Solvent removable (Mandatory)<br>Fluorescent and contrast penetrants. | **02** | **120** | **70** |
| | | | **Instruction Writing**<br>The candidate shall write an NDT instruction on a plate butt or pipe butt weld suitable forLevel 1 personnel as selected by the examiner. | **01** | **120** | **70** |
| **02** | **2** | **Castings/Forging Supplementary Examination.** | **Specific (Multiple Choice Questions)** | **30** | **60** | **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. | **02** | **60 minutes per sample** | **70** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Water washable, Solvent removable ,Post emulsifiable<br>Fluorescent and colour penetrants. | | | |
| **03** | **2** | **Multisector (Weld,Casting and Forging)** | **General (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Practical Examination**<br>The candidate is required to test and report on three specimens selected by the examiner from welds (in plate, pipe or T joint), castings and wrought products (including forgings) using three different techniques from those shown below.<br>Water washable Solvent removable Post emulsifiable<br>Fluorescent and colour penetrants.<br>**Instruction Writing**<br>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**<br><br>**01** | **180**<br><br>**120** | **70**<br><br>**70** |
| **04** | **3** | **Multisector** | **BASIC** | | | |
| | | | **PART A**: Material Science and Process Technology (Multiple Choice Question)<br>**PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ)<br>**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. | <br>**30**<br>**10**<br>**60** | <br>**60**<br>**20**<br>**120** | <br>**70**<br>**70**<br>**70** |
| | | | **MAIN METHOD** | | | |
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought<br>**PART E**: 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<br>**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. | **30**<br>**20**<br>**01** | **60**<br>**40**<br>**240** | **70**<br>**70**<br>**70** |

| | |
|---|---|
| **Examination Syllabus : ReferQP25** | **Reference Literature : ReferQP25** |

**CM-01 Annex F**

<table>
<tr><th colspan="6">Method : Radiographic Interpreter</th></tr>
<tr><th rowspan="2">S.No</th><th rowspan="2">Level</th><th rowspan="2">Sector</th><th colspan="3">Examination Requirements</th></tr>
<tr><th>Examination Section and its Description</th><th>Number of Questions / samples</th><th>Time allotted (Minutes)</th><th>Pass Percentage (%)</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">2</td><td rowspan="3">Welds<br>(Light/Dense Metal)<br>X-ray/Gamma Radiation</td><td>General (Multiple Choice Questions)</td><td>40</td><td>80</td><td>70</td></tr>
<tr><td>Specific (Multiple Choice Questions)</td><td>20</td><td>40</td><td>70</td></tr>
<tr><td><u>Specific Practical Examination</u><br>Certification is awarded in a number of combinations of metal groups:<br><table><tr><td>Category</td><td>Light</td><td>Dense</td><td>Combines</td></tr><tr><td>No. of samples</td><td>12</td><td>12</td><td>12 (Light 6 + Dense 6)</td></tr></table>Dense Metals : Ferritic Steels including clad steels, Austenitic steels and high nickel alloys, Copper, Copper alloys, Monel and Titanium alloys<br>Light Metals : Aluminium, Magnesium and their alloys<br>For each radiograph the candidate is required to locate and identify defects and to comment upon radiographic technique and quality of the radiographs.</td><td>12</td><td>240</td><td>70</td></tr>
<tr><td colspan="3">Examination Syllabus : ReferQP25</td><td colspan="3">Reference Literature : ReferQP25</td></tr>
</table>

**CM-01 Annex G**

<table>
<tr><th colspan="6">Method : Radiography Testing</th></tr>
<tr><th rowspan="2">S.No</th><th rowspan="2">Level</th><th rowspan="2">Sector</th><th colspan="4">Examination Requirements</th></tr>
<tr><th>Examination Section and its Description</th><th>Number of Questions / samples</th><th>Time allotted (Minutes)</th><th>Pass Percentage (%)</th></tr>
<tr><td rowspan="3">01</td><td rowspan="3">2</td><td rowspan="3">Welds<br>(Light/Dense Metal)<br>X-ray/Gamma Radiation</td><td>General (Multiple Choice Questions)</td><td>40</td><td>80</td><td>70</td></tr>
<tr><td>Specific (Multiple Choice Questions)</td><td>20</td><td>40</td><td>70</td></tr>
<tr><td><u>Specific Practical Examination</u><br>In the practical part of the specific examination, the candidate shall radiograph two samples and to evaluate the radiographs produced for areas requiring further investigation.<br>The samples shall consist of at least one of each from the following categories:<br>Plate butt welds(3.1)<br>Pipe butt welds(3.2)<br>andshallincludecarbonsteelandaluminiumamongstthematerialgroupstested<br>Note: 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.<br><u>Radiographic Interpretation:</u><br>
<table>
<tr><td>Category</td><td>Light</td><td>Dense</td><td>Combines</td></tr>
<tr><td>No. of samples</td><td>12</td><td>12</td><td>12 (Light 6 + Dense 6)</td></tr>
</table>
Dense Metals : Ferritic Steels including clad steels, Austenitic steels and high nickel alloys, Copper, Copper alloys, Monel and Titanium alloys<br>Light Metals : Aluminium, Magnesium and their alloys<br>For each radiograph the candidate is required to locate and identify defectsandtocommentuponradiographictechniqueandqualityoftheradiographs</td><td>02<br><br>12</td><td>240<br><br>240</td><td>70<br><br>70</td></tr>
</table>

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **Instruction Writing:**<br>CandidatesareinadditionrequiredtoproduceadetailedNDTinstruction,suitable for a Level 1 to follow, for one of the sample selected by the examiner.<br>Note: Candidates possess valid ISO 9712 RI Level 2 shall be exempted from the Radiogaphic Interpretation. | **01** | **120** | **70** |
| **04** | **3** | **Welds** | **BASIC** | | | |
| | | | **PART A**: Material Science and Process Technology (Multiple Choice Question) | **30** | **60** | **70** |
| | | | **PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ) | **10** | **20** | **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 at least one volumetric test method. | **60** | **120** | **70** |
| | | | **MAIN METHOD** | | | |
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought | **30** | **60** | **70** |
| | | | **PART E**: 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** | **40** | **70** |
| | | | **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. | **01** | **240** | **70** |
| **Examination Syllabus : Refer QP25** | | | | **Reference Literature : Refer QP25** | | |

**CM-01 Annex H**

| 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** | **General (Multiple Choice Questions)** | **40** | **80** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>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 ad record the results. | **01** | **30** | **70** |
| | | | **Specific Practical Examination**<br>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** |
| | | | **Instruction Writing**<br>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** | **BASIC** | | | |
| | | | **PART A**: Material Science and Process Technology (Multiple Choice Question) | **30** | **60** | **70** |
| | | | **PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ) | **10** | **20** | **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 at least one volumetric test method. | **60** | **120** | **70** |
| | | | **MAIN METHOD** | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought | **30** | **60** | **70** |
| | | | **PART E**: 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** | **40** | **70** |
| | | | **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. | **01** | **240** | **70** |
| **Examination Syllabus : Refer QP25** | | | **Reference Literature : Refer QP25** | | | |

**CM-01 Annex I**

| 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** | **General (Multiple Choice Questions) (not applicable if supplementary)** | **40** | **80** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>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 ad record the results. | **01** | **30** | **70** |
| | | | **Specific Practical Examination**<br>The candidate is required to test and report on two tube bundles made of different material grouping employing bobbin probes. | **02*** | **360** | **70** |
| | | | **Instruction Writing**<br>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** | **BASIC** | | | |
| | | | **PART A**: Material Science and Process Technology (Multiple Choice Question) | **30** | **60** | **70** |
| | | | **PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ) | **10** | **20** | **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. | **60** | **120** | **70** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **MAIN METHOD** | | | |
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought | **30** | **60** | **70** |
| | | | **PART E**: 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** | **40** | **70** |
| | | | **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. | **01** | **240** | **70** |
| **Examination Syllabus : Refer QP** | | | | **Reference Literature : Refer QP** | | |

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

**CM-01 Annex J**

| 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** | | | |

**CM-01 Annex K**

| 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** | **Eligibility**<br>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. | | | |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>The candidate is required to assess and evaluate Automated ultrasonic data from a typical production run for accuracy and completeness | **01** | **60** | **70** |
| | | | **Specific Practical Examination**<br>The candidate is required to assess and evaluate Automated Phased array inspection data selected by the examiner | **12** | **240** | **70** |
| **Examination Syllabus : ReferQP25** | | | **Reference Literature : ReferQP25** | | | |

**CM-01 Annex L**

| 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** | **Eligibility**<br>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. | | | |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>The candidate is required to assess and evaluate PAUT data from a typical production run for accuracy and completeness<br>**Specific Practical Examination**<br>The candidate is required to assess and evaluate Phased array inspection data selected by the examiner (6 Scanned images) | **06** | **240** | **70** |
| **Examination Syllabus : ReferQP25** | | | **Reference Literature : ReferQP25** | | | |

**CM-01 Annex M**

| Method : Time of Flight Ultrasonic Testing 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** | **Eligibility**<br>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. | | | |
| | | | **Specific (Multiple Choice Questions)** | **20** | **40** | **70** |
| | | | **General Practical Examination**<br>The candidate is required to assess and evaluate TOFD ultrasonic data from a typical production run for accuracy and completeness<br>**Specific Practical Examination**<br>The candidate is required to assess and evaluate automated Phased array inspection data selected by the examiner (6 scanned images) | **05** | **150** | **70** |
| **Examination Syllabus : ReferQP25** | | | **Reference Literature : ReferQP25** | | | |

**CM-01 Annex N**

| 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** | **Multi sector (Weld, Casting and Forging)** | **General (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Specific (Multiple Choice Questions)** | **30** | **60** | **70** |
| | | | **Practical Examination**<br>The candidate is required to test and report on three specimens selected by the examiner from welds (in plate, pipe or T-joint), castings and wrought products. | **03** | **180** | **70** |
| | | | **Instruction Writing**<br>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** | **Multi sector** | **BASIC** | | | |
| | | | **PART A**: Material Science and Process Technology (Multiple Choice Question) | **30** | **60** | **70** |
| | | | **PART B**: Knowledge of the CB system based on ISO9712. (Open Book –MCQ) | **10** | **20** | **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. | **60** | **120** | **70** |
| | | | **MAIN METHOD** | | | |
| | | | **PART D** : Level 3 knowledge relating to the test method for which certification is sought | **30** | **60** | **70** |
| | | | **PART E**: 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** | **40** | **70** |
| | | | **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. | **01** | **240** | **70** |
| **Examination Syllabus : ReferQP25** | | | **Reference Literature : ReferQP25** | | | |