

## Qualification Pack



# Multi Skill Technician - Consumer Durables

QP Code: ELE/Q3118

Version: 1.0

NSQF Level: 4

Electronic Sector Skill Council of India || 155, 2nd Floor, ESC House, Okhla Industrial Area - Phase 3,  
New Delhi - 110020

## Qualification Pack

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### ELE/Q3118: Multi Skill Technician - Consumer Durables

#### Brief Job Description

The incumbent at work is responsible for installation, diagnose, troubleshoot and repair all consumer durables like refrigerator, TV, washing machine, water purifier, microwave etc. and communicate the Service Manager/Lead Mechanic regarding repair priorities and status

#### Personal Attributes

The individual must have strength to lift heavy parts and modules, ability to work in high-decibel noise environment and in a standing position for long hours.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

1. [DGT/VSQ/N0102: Employability Skills \(60Hours\)](#)

##### Elective NOS: 1

1. [ELE/N3169: Installation and repair of refrigerator \(DIOS\)](#)
2. [ELE/N3170: Installation and repair of washing machine](#)
3. [ELE/N3163: Installation and repair of dish washer](#)
4. [ELE/N3162: Installation and repair of air conditioner](#)
5. [ELE/N3161: Gas charging in the refrigerator and AC](#)

##### Elective NOS: 2

1. [ELE/N3168: Installation and repair of television](#)
2. [ELE/N3167: Installation and repair of microwave](#)
3. [ELE/N3166: Installation and repair of water purifier](#)
4. [ELE/N3165: Installation and repair of basic refrigerator and washing machine](#)
5. [ELE/N3164: Installation and repair of OLED/ Monitor](#)

#### Qualification Pack (QP) Parameters

|                               |                                      |
|-------------------------------|--------------------------------------|
| Sector                        | Electronics                          |
| Sub-Sector                    | Consumer Electronics and IT Hardware |
| Occupation                    | After Sales Service                  |
| Country                       | India                                |
| NSQF Level                    | 4                                    |
| Aligned to NCO/ISCO/ISIC Code | NCO-2015/7421.0701                   |

### Qualification Pack

|   |  |
|---|--|
| Minimum Educational Qualification & Experience    | 8th grade pass + NTC (2 years after 8th) with 1 year of NAC/relevant experience<br>OR<br>10th grade pass with 1 year NTC/NAC/relevant experience<br>OR<br>11th grade<br>OR<br>Certificate (NSQF Level-3 in the relevant field) with 2 years of relevant experience |
| Minimum Level of Education for Training in School | 10 <sup>th</sup> grade   |
| Pre-Requisite License or Training                 | NA   |
| Minimum Job Entry Age                             | 18 Years   |
| Last Reviewed On                                  | 17/11/2022   |
| Next Review Date                                  | 17/11/2025   |
| Deactivation Date                                 | 17/11/2025   |
| NSQC Approval Date                                | 17/11/2022   |
| Version   | 1.0  |
| Reference code on NQR                             |  |
| NQR Version                                       | 1.0  |

## Qualification Pack

### DGT/VSQ/N0102: Employability Skills (60 Hours)

#### Description

This unit is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

#### Scope

The scope covers the following:

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

#### Elements and Performance Criteria

##### *Introduction to Employability Skills*

To be competent, the user/individual on the job must be able to:

- PC1. identify employability skills required for jobs in various industries
- PC2. identify and explore learning and employability portals

##### *Constitutional values - Citizenship*

To be competent, the user/individual on the job must be able to:

- PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.
- PC4. follow environmentally sustainable practices

##### *Becoming a Professional in the 21st Century*

To be competent, the user/individual on the job must be able to:

- PC5. recognize the significance of 21st Century Skills for employment
- PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life

##### *Basic English Skills*

To be competent, the user/individual on the job must be able to:

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- PC7. use basic English for everyday conversation in different contexts, in person and over the telephone
- PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English
- PC9. write short messages, notes, letters, e-mails etc. in English

#### *Career Development & Goal Setting*

To be competent, the user/individual on the job must be able to:

- PC10. understand the difference between job and career
- PC11. prepare a career development plan with short- and long-term goals, based on aptitude

#### *Communication Skills*

To be competent, the user/individual on the job must be able to:

- PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings
- PC13. work collaboratively with others in a team

#### *Diversity & Inclusion*

To be competent, the user/individual on the job must be able to:

- PC14. communicate and behave appropriately with all genders and PwD
- PC15. escalate any issues related to sexual harassment at workplace according to POSH Act

#### *Financial and Legal Literacy*

To be competent, the user/individual on the job must be able to:

- PC16. select financial institutions, products and services as per requirement
- PC17. carry out offline and online financial transactions, safely and securely
- PC18. identify common components of salary and compute income, expenses, taxes, investments etc
- PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation

#### *Essential Digital Skills*

To be competent, the user/individual on the job must be able to:

- PC20. operate digital devices and carry out basic internet operations securely and safely
- PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively
- PC22. use basic features of word processor, spreadsheets, and presentations

#### *Entrepreneurship*

To be competent, the user/individual on the job must be able to:

- PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research
- PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion
- PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity

#### *Customer Service*

To be competent, the user/individual on the job must be able to:

- PC26. identify different types of customers
- PC27. identify and respond to customer requests and needs in a professional manner.
- PC28. follow appropriate hygiene and grooming standards

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### *Getting ready for apprenticeship & Jobs*

To be competent, the user/individual on the job must be able to:

- PC29. create a professional Curriculum vitae (Résumé)
- PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively
- PC31. apply to identified job openings using offline /online methods as per requirement
- PC32. answer questions politely, with clarity and confidence, during recruitment and selection
- PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. need for employability skills and different learning and employability related portals
- KU2. various constitutional and personal values
- KU3. different environmentally sustainable practices and their importance
- KU4. Twenty first (21st) century skills and their importance
- KU5. how to use English language for effective verbal (face to face and telephonic) and written communication in formal and informal set up
- KU6. importance of career development and setting long- and short-term goals
- KU7. about effective communication
- KU8. POSH Act
- KU9. Gender sensitivity and inclusivity
- KU10. different types of financial institutes, products, and services
- KU11. how to compute income and expenditure
- KU12. importance of maintaining safety and security in offline and online financial transactions
- KU13. different legal rights and laws
- KU14. different types of digital devices and the procedure to operate them safely and securely
- KU15. how to create and operate an e- mail account and use applications such as word processors, spreadsheets etc.
- KU16. how to identify business opportunities
- KU17. types and needs of customers
- KU18. how to apply for a job and prepare for an interview
- KU19. apprenticeship scheme and the process of registering on apprenticeship portal

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. read and write different types of documents/instructions/correspondence
- GS2. communicate effectively using appropriate language in formal and informal settings
- GS3. behave politely and appropriately with all
- GS4. how to work in a virtual mode

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- GS5. perform calculations efficiently
- GS6. solve problems effectively
- GS7. pay attention to details
- GS8. manage time efficiently
- GS9. maintain hygiene and sanitization to avoid infection



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### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Introduction to Employability Skills</i>   | 1            | 1               | -             | -          |
| PC1. identify employability skills required for jobs in various industries  | -            | -               | -             | -          |
| PC2. identify and explore learning and employability portals  | -            | -               | -             | -          |
| <i>Constitutional values - Citizenship</i>  | 1            | 1               | -             | -          |
| PC3. recognize the significance of constitutional values, including civic rights and duties, citizenship, responsibility towards society etc. and personal values and ethics such as honesty, integrity, caring and respecting others, etc.   | -            | -               | -             | -          |
| PC4. follow environmentally sustainable practices   | -            | -               | -             | -          |
| <i>Becoming a Professional in the 21st Century</i>  | 2            | 4               | -             | -          |
| PC5. recognize the significance of 21st Century Skills for employment   | -            | -               | -             | -          |
| PC6. practice the 21st Century Skills such as Self-Awareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, emotional awareness, learning to learn for continuous learning etc. in personal and professional life | -            | -               | -             | -          |
| <i>Basic English Skills</i>   | 2            | 3               | -             | -          |
| PC7. use basic English for everyday conversation in different contexts, in person and over the telephone  | -            | -               | -             | -          |
| PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English   | -            | -               | -             | -          |
| PC9. write short messages, notes, letters, e-mails etc. in English  | -            | -               | -             | -          |
| <i>Career Development &amp; Goal Setting</i>  | 1            | 2               | -             | -          |

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|  |          |          |   |   |
|--|----------|----------|---|---|
| PC10. understand the difference between job and career   | -        | -        | - | - |
| PC11. prepare a career development plan with short- and long-term goals, based on aptitude                     | -        | -        | - | - |
| <i>Communication Skills</i>  | <b>2</b> | <b>2</b> | - | - |
| PC12. follow verbal and non-verbal communication etiquette and active listening techniques in various settings | -        | -        | - | - |
| PC13. work collaboratively with others in a team   | -        | -        | - | - |
| <i>Diversity &amp; Inclusion</i>   | <b>1</b> | <b>2</b> | - | - |
| PC14. communicate and behave appropriately with all genders and PwD  | -        | -        | - | - |
| PC15. escalate any issues related to sexual harassment at workplace according to POSH Act                      | -        | -        | - | - |
| <i>Financial and Legal Literacy</i>  | <b>2</b> | <b>3</b> | - | - |
| PC16. select financial institutions, products and services as per requirement                                  | -        | -        | - | - |
| PC17. carry out offline and online financial transactions, safely and securely                                 | -        | -        | - | - |
| PC18. identify common components of salary and compute income, expenses, taxes, investments etc                | -        | -        | - | - |
| PC19. identify relevant rights and laws and use legal aids to fight against legal exploitation                 | -        | -        | - | - |
| <i>Essential Digital Skills</i>  | <b>3</b> | <b>4</b> | - | - |
| PC20. operate digital devices and carry out basic internet operations securely and safely                      | -        | -        | - | - |
| PC21. use e- mail and social media platforms and virtual collaboration tools to work effectively               | -        | -        | - | - |
| PC22. use basic features of word processor, spreadsheets, and presentations                                    | -        | -        | - | - |
| <i>Entrepreneurship</i>  | <b>2</b> | <b>3</b> | - | - |

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|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research                                       | -         | -         | - | - |
| PC24. develop a business plan and a work model, considering the 4Ps of Marketing Product, Price, Place and Promotion  | -         | -         | - | - |
| PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles for the potential business opportunity   | -         | -         | - | - |
| <i>Customer Service</i>   | <b>1</b>  | <b>2</b>  | - | - |
| PC26. identify different types of customers   | -         | -         | - | - |
| PC27. identify and respond to customer requests and needs in a professional manner.   | -         | -         | - | - |
| PC28. follow appropriate hygiene and grooming standards   | -         | -         | - | - |
| <i>Getting ready for apprenticeship &amp; Jobs</i>  | <b>2</b>  | <b>3</b>  | - | - |
| PC29. create a professional Curriculum vitae (Résumé)   | -         | -         | - | - |
| PC30. search for suitable jobs using reliable offline and online sources such as Employment exchange, recruitment agencies, newspapers etc. and job portals, respectively | -         | -         | - | - |
| PC31. apply to identified job openings using offline /online methods as per requirement   | -         | -         | - | - |
| PC32. answer questions politely, with clarity and confidence, during recruitment and selection  | -         | -         | - | - |
| PC33. identify apprenticeship opportunities and register for it as per guidelines and requirements  | -         | -         | - | - |
| <b>NOS Total</b>  | <b>20</b> | <b>30</b> | - | - |

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### National Occupational Standards (NOS) Parameters

|                     |                                 |
|---------------------|---------------------------------|
| NOS Code            | DGT/VSQ/N0102                   |
| NOS Name            | Employability Skills (60 Hours) |
| Sector              | Cross Sectoral                  |
| Sub-Sector          | Professional Skills             |
| Occupation          | Employability                   |
| NSQF Level          | 4                               |
| Credits             | TBD                             |
| Version             | 1.0                             |
| Last Reviewed Date  | NA                              |
| Next Review Date    | 30/06/2027                      |
| NSQC Clearance Date | 30/06/2022                      |

## Qualification Pack

### ELE/N3169: Installation and repair of Refrigerator (DIOS)

#### Description

This unit is about performing installation and onsite repairing of the refrigerator (DIOS) as per the specifications of the manufacturer and consultation with the customer addressing his/her needs.

#### Scope

The scope covers the following:

- Prepare for installation and repairing of refrigerator (DIOS)
- Install refrigerator (DIOS)
- Carryout troubleshooting and repairing of the refrigerator (DIOS)
- Carryout post installation and repairing activities

#### Elements and Performance Criteria

##### *Prepare for installation and repairing of refrigerator (DIOS)*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

##### *Install refrigerator (DIOS)*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the refrigerator (DIOS) packaging and check the product specifications with the billing invoice for colour, make and capacity
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the space to place the refrigerator as per the need of customer
- PC9. check for the availability of power point, surface level, distance from wall etc. needed for placing the refrigerator (DIOS) as per the instructions in manufacturer manual and SOP
- PC10. place the appliance on a firm and level floor and fix all the accessories and parts i.e. shelves, baskets etc. as per the instructions in manufacturer manual and SOP
- PC11. be careful not to expose the rear of the appliance and not to place the appliance in a damp and dusty place when installing
- PC12. connect the refrigerator to the power point and set temperature parameters as per the instructions in manufacturer manual and SOP
- PC13. demonstrate and explain the various functions and features of refrigerator (DIOS) on various temperature settings and use of control panel to the customer

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- PC14. ensure that the outlet socket is properly grounded, and that the earth pin on the power cord is not damaged or removed from the power plug
- PC15. install the smart feature application of refrigerator (DIOS) in customer's smartphone and connect the refrigerator with customer's smartphone
- PC16. demonstrate how to operate and monitor the functioning of refrigerator through application
- PC17. guide the customer on day-to-day care activities and precautions while using the refrigerator (DIOS) as mentioned in product manual

### *Carryout troubleshooting and repairing of the refrigerator (DIOS)*

- PC18. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC19. use the smart feature app installed in customer's smartphone to diagnose the issues in the refrigerator (DIOS) by following instructions in manufacturer manual
- PC20. refill the refrigerant gas if required by following instructions in manufacturer manual
- PC21. carry out troubleshooting activities to identify the faults and faulty component in the refrigerator (DIOS)
- PC22. unplug the unit, carry out basic tests such as power supply inspection, volt ampere test and earth test power supply, compressor, condenser etc. as per the instructions in manufacturer manual and SOP
- PC23. remove the faulty component for carrying out repair or replacement after disconnecting it from power supply
- PC24. repair the fault if possible or send the report to service center for replacement
- PC25. replace the component in second visit to the site
- PC26. reassemble the module and refrigerator in complete and connect it to power supply for checking the working
- PC27. check all the modules working as per specifications
- PC28. if the problem cannot be serviced onsite, then sent the unit to service center for repairing

### *Carryout post installation and repairing activities*

- PC29. clear up the packaging material waste and dispose as per company's norms
- PC30. collect the payments if the unit is not in warranty and complete the documentation
- PC31. fill the installation or service report and take acknowledgment from the customer
- PC32. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of

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equipment

- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs)
- KU13. functioning of various electromechanical parts of the refrigerator
- KU14. fundamentals of electricity such as ohms law, difference between ac and dc
- KU15. method of refrigeration, its use and functioning of refrigerator sealed system
- KU16. refrigeration cycle and functioning of the appliance and its various modules
- KU17. types of refrigerants such as R12, R22, R134a, R290, R600a, R410, R32 use of different brazing sticks, types of brazing torches and their application
- KU18. installation site requirements (structural requirements, ventilation, etc.)
- KU19. different features and functionalities of various refrigerator (DIOS) models
- KU20. procedure of installing the refrigerator (DIOS)
- KU21. functioning of various parts of the refrigerator (DIOS)
- KU22. troubleshooting and repairing activities for refrigerator (DIOS)
- KU23. reports and documents need to fill and maintain related to installation and repairing work

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. record the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowchart for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognize a workplace problem and take suitable action to resolve it

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### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <b>Prepare for installation and repairing of refrigerator (DIOS)</b>  | <b>4</b>     | <b>3</b>        | <b>-</b>      | <b>-</b>   |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| <b>Install refrigerator (DIOS)</b>  | <b>18</b>    | <b>26</b>       | <b>-</b>      | <b>-</b>   |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the refrigerator (DIOS) packaging and check the product specifications with the billing invoice for colour, make and capacity   | 0            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 2            | 0               |               |            |
| PC8. identify the space to place the refrigerator as per the need of customer   | 1            | 1               |               |            |
| PC9. check for the availability of power outlet, surface level, distance from wall etc. needed for placing the refrigerator (DIOS) as per the instructions in manufacturer manual and SOP   | 2            | 3               |               |            |
| PC10. place the appliance on a firm and level floor and fix all the accessories and parts i.e. shelves, baskets etc. as per the instructions in manufacturer manual and SOP   | 2            | 4               |               |            |
| PC11. be careful not to expose the rear of the appliance and not to place the appliance in a damp and dusty place when installing   | 1            | 0               |               |            |



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| PC12. connect the refrigerator to the power point and set temperature parameters as per the instructions in manufacturer manual and SOP   | 1         | 2         |   |   |
| PC13. demonstrate and explain the various functions and features of refrigerator (DIOS) on various temperature settings and use of control panel to the customer  | 2         | 4         |   |   |
| PC14. ensure that the outlet socket is properly grounded, and that the earth pin on the power cord is not damaged or removed from the power plug  | 1         | 1         |   |   |
| PC15. install the smart feature application of refrigerator (DIOS) in customer's smartphone and connect the refrigerator with customer's smartphone   | 2         | 3         |   |   |
| PC16. demonstrate how to operate and monitor the functioning of refrigerator through application  | 2         | 4         |   |   |
| PC17. guide the customer on day-to-day care activities and precautions while using the refrigerator (DIOS) as mentioned in product manual   | 1         | 1         |   |   |
| <b>Carryout troubleshooting and repairing of the refrigerator (DIOS)</b>  | <b>15</b> | <b>26</b> | - | - |
| PC18. enquire about the problems/unusual conditions noticed on the equipment from the customer  | 1         | 1         |   |   |
| PC19. use the smart feature app installed in customer's smartphone to diagnose the issues in the refrigerator (DIOS) by following instructions in manufacturer manual   | 2         | 3         |   |   |
| PC20. refill the refrigerant gas if required by following instructions in manufacturer manual   | 1         | 2         |   |   |
| PC21. carry out troubleshooting activities to identify the faults and faulty component in the refrigerator (DIOS)   | 2         | 4         |   |   |
| PC22. unplug the unit, carry out basic tests such as power supply inspection, volt ampere test and earth test power supply, compressor, condenser etc. as per the instructions in manufacturer manual and SOP | 2         | 4         |   |   |
| PC23. remove the faulty component for carrying out repair or replacement after  | 1         | 2         |   |   |

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|  |           |           |   |   |
|--|-----------|-----------|---|---|
| disconnecting it from power supply   |           |           |   |   |
| PC24. repair the fault if possible or send the report to service center for replacement                          | 2         | 3         |   |   |
| PC25. replace the component in second visit to the site  | 1         | 2         |   |   |
| PC26. reassemble the module and refrigerator in complete and connect it to power supply for checking the working | 1         | 2         |   |   |
| PC27. check all the modules working as per specifications  | 1         | 2         |   |   |
| PC28. if the problem cannot be serviced onsite, then sent the unit to service center for repairing               | 1         | 1         |   |   |
| <i>Carryout post installation and repairing activities</i>   | <b>3</b>  | <b>5</b>  | - | - |
| PC29. clear up the packaging material waste and dispose as per company's norms                                   | 1         | 1         |   |   |
| PC30. collect the payments if the unit is not in warranty and complete the documentation                         | 1         | 1         |   |   |
| PC31. fill the installation or service report and take acknowledgment from the customer                          | 1         | 2         |   |   |
| PC32. document the work completed for future records   | 0         | 1         |   |   |
| <b>NOS Total</b>   | <b>40</b> | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |  |
|---------------------|--|
| NOS Code            | ELE/N3169                                      |
| NOS Name            | Installation and repair of Refrigerator (DIOS) |
| Sector              | Electronics Sector                             |
| Sub-Sector          | Consumer Electronics and IT Hardware           |
| Occupation          | After Sales Service                            |
| NSQF Level          | 4  |
| Credits             | TBD  |
| Version             | 1.0  |
| Last Reviewed Date  | 17/11/2022                                     |
| Next Review Date    | 17/11/2025                                     |
| NSQC Clearance Date | 17/11/2022                                     |

## Qualification Pack

### ELE/N3170: Installation and repair of washing machine

#### Description

This unit is about performing installation and repairing of the washing machine as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

#### Scope

The scope covers the following:

- Prepare for installation and repairing of washing machine
- Install washing machine
- Carryout troubleshooting and repairing of the washing machine
- Carryout post installation and repairing activities

#### Elements and Performance Criteria

##### *Prepare for installation and repairing of washing machine*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

##### *Install washing machine*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the washing machine packaging in which it was shipped to customer and check the product specifications with the billing invoice to identify type (top load or front load, semi-automatic or fully automatic), make and capacity of washing machine
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the place to fix the washing machine as per the need of customer
- PC9. check for the availability of power outlet, surface level, water supply etc. needed for installing the water purifier as per the instructions in manufacturer manual and SOP
- PC10. place the washing machine properly at levelled surface and at appropriate distance from the water supply as per SOP
- PC11. connect the water hose and rain pipe with the washing machine and water supply tap as per the instructions in manufacturer manual and SOP
- PC12. ensure that the machine is placed against an exterior wall to the drain hose running along the inside wall
- PC13. remove all transport pins inside the drum of the washing machine before starting the machine

### Qualification Pack

- PC14. plug the power cord in the power outlet, start the washing machine and open the water supply valve
- PC15. operate and check that there are no leaks and the machine is in a safe and stable condition
- PC16. demonstrate the features, functioning and use of control panel of washing machine to the customer as per the instructions in manufacturer manual and SOP
- PC17. guide the customer about day-to-day care activities and precautions while using the washing machine as mentioned in product manual

#### *Carryout troubleshooting and repairing of the washing machine*

- PC18. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC19. check the washing machine for any servicing requirements and clean the washing machine drum, filter, drain and water hose etc. as per the SOP
- PC20. diagnose the fault in the unit as per customer interaction and initial inspection
- PC21. identify the cycle(fill/wash and rinse/spin and drain) during which the problem occurs based on customer interaction
- PC22. ensure that the unit is unplugged before carrying out any tests
- PC23. inspect basic parts such as valve strainers, fill hose, drain line, pressure tube, water valves, pressure sensor
- PC24. carry out basic tests such as power supply inspection, volt ampere and continuity tests
- PC25. dismantle the washing machine and check for faults in the control/service panel, lid switch, water level control switch, timer, etc.
- PC26. follow the electrical circuit path and inspect each component in that sequence in order to identify any electrical faults in the unit
- PC27. ensure that all parts such as motors, transformer, pulley and belt system, motor starting switch, solenoid, clutch lining have been inspected
- PC28. send to factory for in depth diagnosis, if unable to identify problem at site
- PC29. rectify the problem in the water source, ensure that water supply is turned on and that there are no kinks in the hoses
- PC30. inspect the soap deposition inside the machine, clean the same and run the machine through a complete wash cycle
- PC31. select the right spares according to recorded complaints at the customer care
- PC32. reassemble the unit post maintenance and do the trial run
- PC33. demonstrate and confirm functionality of the washing machine with the customer

#### *Carryout post installation and repairing activities*

- PC34. clear up the packaging material waste and dispose as per company's norms
- PC35. collect the payment if the unit is not in warranty and complete the documentation
- PC36. fill the installation or service report and take acknowledgment from the customer
- PC37. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:  
Electronics Skill Council of India

## Qualification Pack

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. installation site requirements (structural requirements, ventilation, etc.)
- KU13. different types of washing machines, e.g., front load and top load, automatic or semi-automatic and differences in their operation
- KU14. different features and functionalities of various models
- KU15. procedure of installing the washing machine
- KU16. method of cleaning and its use
- KU17. functioning of various parts of the washing machine
- KU18. Troubleshooting and repairing of faults in washing machine

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowcharts for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision-making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist

## Qualification Pack

GS12. recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes   | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|--|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of washing machine</i>   | 4            | 3               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work  | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work  | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use   | 1            | 2               |               |            |
| <i>Install washing machine</i>   | 17           | 25              | -             | -          |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards                              | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments  | 0            | 1               |               |            |
| PC6. remove the washing machine packaging in which it was shipped to customer and check the product specifications with the billing invoice to identify type (top load or front load, semi-automatic or fully automatic), make and capacity of washing machine | 1            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack   | 2            | 0               |               |            |
| PC8. identify the place to fix the washing machine as per the need of customer   | 1            | 1               |               |            |
| PC9. check for the availability of electrical socket, surface level, water supply etc. needed for installing the water purifier as per the instructions in manufacturer manual and SOP   | 1            | 2               |               |            |
| PC10. place the washing machine properly at levelled surface and at appropriate distance from the water supply as per SOP  | 1            | 2               |               |            |
| PC11. connect the water hose and rain pipe with the washing machine and water supply tap as per the instructions in manufacturer   | 1            | 2               |               |            |



### Qualification Pack

|  |           |           |   |   |
|--|-----------|-----------|---|---|
| manual and SOP   |           |           |   |   |
| PC12. ensure that the machine is placed against an exterior wall to the drain hose running along the inside wall   | 1         | 0         |   |   |
| PC13. remove all transport pins inside the drum of the washing machine before starting the machine   | 1         | 2         |   |   |
| PC14. plug the power cord in the power outlet, start the washing machine and open the water supply valve   | 2         | 4         |   |   |
| PC15. operate and check that there are no leaks and the machine is in a safe and stable condition  | 2         | 4         |   |   |
| PC16. demonstrate the features, functioning and use of control panel of washing machine to the customer as per the instructions in manufacturer manual and SOP | 2         | 4         |   |   |
| PC17. guide the customer about day-to-day care activities and precautions while using the washing machine as mentioned in product manual                       | 1         | 1         |   |   |
| <b>Carryout troubleshooting and repairing of washing machine</b>   | <b>16</b> | <b>27</b> | - | - |
| PC18. enquire about the problems/unusual conditions noticed on the equipment from the customer   | 1         | 1         |   |   |
| PC19. check the washing machine for any servicing requirements and clean the washing machine drum, filter, drain and water hose etc. as per the SOP            | 1         | 4         |   |   |
| PC20. diagnose the fault in the unit as per customer interaction and initial inspection  | 2         | 4         |   |   |
| PC21. identify the cycle(fill/wash and rinse/spin and drain) during which the problem occurs based on customer interaction                                     | 1         | 2         |   |   |
| PC22. ensure that the unit is unplugged before carrying out any tests  | 1         | 0         |   |   |
| PC23. inspect basic parts such as valve strainers, fill hose, drain line, pressure tube, water valves, pressure sensor   | 1         | 4         |   |   |
| PC24. carry out basic tests such as power supply inspection, volt ampere and continuity tests  | 1         | 2         |   |   |

### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC25. dismantle the washing machine and check for faults in the control/service panel, lid switch, water level control switch, timer, etc.          | 1         | 2         |   |   |
| PC26. follow the electrical circuit path and inspect each component in that sequence in order to identify any electrical faults in the unit         | 1         | 1         |   |   |
| PC27. ensure that all parts such as motors, transformer, pulley and belt system, motor starting switch, solenoid, clutch lining have been inspected | 1         | 0         |   |   |
| PC28. send to factory for in depth diagnosis, if unable to identify problem at site   | 1         | 1         |   |   |
| PC29. rectify the problem in the water source, ensure that water supply is turned on and that there are no kinks in the hoses                       | 1         | 1         |   |   |
| PC30. inspect the soap deposition inside the machine, clean the same and run the machine through a complete wash cycle                              | 1         | 1         |   |   |
| PC31. select the right spares according to recorded complaints at the customer care   | 1         | 1         |   |   |
| PC32. reassemble the unit post maintenance and do the trial run   | 1         | 2         |   |   |
| PC33. demonstrate and confirm functionality of the washing machine with the customer  | 0         | 1         |   |   |
| <i>Carryout post installation and repairing activities</i>  | <b>3</b>  | <b>5</b>  | - | - |
| PC34. clear up the packaging material waste and dispose as per company's norms  | 1         | 1         |   |   |
| PC35. collect the payment if the unit is not in warranty and complete the documentation   | 1         | 1         |   |   |
| PC36. fill the installation or service report and take acknowledgment from the customer   | 1         | 2         |   |   |
| PC37. document the work completed for future records  | 0         | 1         |   |   |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |  |
|---------------------|--|
| NOS Code            | ELE/N3170                                  |
| NOS Name            | Installation and repair of washing machine |
| Sector              | Electronics Sector                         |
| Sub-Sector          | Consumer Electronics and IT Hardware       |
| Occupation          | After Sales Service                        |
| NSQF Level          | 4  |
| Credits             | TBD  |
| Version             | 1.0  |
| Last Reviewed Date  | 17/11/2022                                 |
| Next Review Date    | 17/11/2025                                 |
| NSQC Clearance Date | 17/11/2022                                 |

## Qualification Pack

### ELE/N3163: Installation and repair of dish washer

#### Description

This unit is about performing installation and repairing of the dish washer as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

#### Scope

The scope covers the following:

- Prepare for installation and repairing of dish washer
- Install dish washer
- Carryout troubleshooting and repairing of the dish washer
- Carryout post installation and repairing activities

#### Elements and Performance Criteria

##### *Prepare for installation and repairing of dish washer*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

##### *Install dish washer*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the dish washer packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the location to fix the dish washer as close to the sink as possible for ease of connection to the water and drain pipes and as per the need of customer
- PC9. check for the availability of power outlet, surface level, clearance with wall or cabinet etc. needed for installing the dish washer as per the instructions in manufacturer manual and SOP
- PC10. make cuts for hoses and electric cables in the shelf if required
- PC11. place the dish washer properly at levelled surface and install moisture barrier, water supply hose, drain hose, other parts and accessories as per the instructions in manufacturer manual and SOP
- PC12. plug the power cord in the power outlet, start the dish washer and open the water supply valve
- PC13. operate and check that there are no leaks and the machine is in a safe and stable condition

### Qualification Pack

- PC14. demonstrate the features, functioning and use of control panel of dish washer to the customer as per the instructions in manufacturer manual and SOP
- PC15. guide the customer about day-to-day care activities and precautions while using the dish washer as mentioned in product manual

#### *Carryout troubleshooting and repairing of the dish washer*

- PC16. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC17. check the dish washer for any servicing requirements and clean the dish washer, filter, drain and water hose etc. as per the SOP
- PC18. diagnose the fault in the unit as per customer interaction and initial inspection
- PC19. unplug the unit, carry out basic tests as per the instructions in manufacturer manual and SOP
- PC20. inspect major components and power supply to reach to the faulty component to be repaired or replaced
- PC21. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP
- PC22. remove the faulty component and replace it onsite if possible or send the report to service center for replacement
- PC23. replace the component in second visit to the site
- PC24. reassemble the unit post maintenance and do the trial run
- PC25. demonstrate and confirm functionality of the dish washer with the customer
- PC26. if the problem cannot be serviced onsite, report and then sent the unit to service center

#### *Carryout post installation and repairing activities*

- PC27. clear up the packaging material waste and dispose as per company's norms
- PC28. collect the payment if the unit is not in warranty and complete the documentation
- PC29. fill the installation or service report and take acknowledgment from the customer
- PC30. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards

### Qualification Pack

from loss of machine/system/process control

- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. installation site requirements (structural requirements, ventilation, etc.)
- KU13. different types of dish washers and differences in their operation
- KU14. different features and functionalities of various models
- KU15. procedure of installing the dish washer
- KU16. method of cleaning and its use
- KU17. functioning of various parts of the dish washer
- KU18. Troubleshooting and repairing of faults in dish washer

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowcharts for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision-making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of dish washer</i>  | 3            | 4               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| <i>Install dish washer</i>  | 18           | 28              | -             | -          |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the dish washer packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP  | 2            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 2            | 0               |               |            |
| PC8. identify the location to fix the dish washer as close to the sink as possible for ease of connection to the water and drain pipes and as per the need of customer  | 1            | 2               |               |            |
| PC9. check for the availability of electrical socket, surface level, clearance with wall or cabinet etc. needed for installing the dish washer as per the instructions in manufacturer manual and SOP                             | 2            | 3               |               |            |
| PC10. make cuts for hoses and electric cables in the shelve if required   | 1            | 3               |               |            |
| PC11. place the dish washer properly at levelled surface and install moisture barrier, water supply hose, drain hose, other parts and accessories as per the instructions in  | 3            | 5               |               |            |

### Qualification Pack

|  |           |           |   |   |
|--|-----------|-----------|---|---|
| manufacturer manual and SOP  |           |           |   |   |
| PC12. plug the power cord in the power outlet, start the dish washer and open the water supply valve   | 2         | 4         |   |   |
| PC13. operate and check that there are no leaks and the machine is in a safe and stable condition  | 1         | 3         |   |   |
| PC14. demonstrate the features, functioning and use of control panel of dish washer to the customer as per the instructions in manufacturer manual and SOP | 2         | 4         |   |   |
| PC15. guide the customer about day-to-day care activities and precautions while using the dish washer as mentioned in product manual                       | 1         | 1         |   |   |
| <b><i>Carryout troubleshooting and repairing of dish washer</i></b>  | <b>15</b> | <b>24</b> | - | - |
| PC16. enquire about the problems/unusual conditions noticed on the equipment from the customer   | 1         | 1         |   |   |
| PC17. check the dish washer for any servicing requirements and clean the dish washer, filter, drain and water hose etc. as per the SOP                     | 2         | 4         |   |   |
| PC18. diagnose the fault in the unit as per customer interaction and initial inspection  | 2         | 4         |   |   |
| PC19. unplug the unit, carry out basic tests as per the instructions in manufacturer manual and SOP  | 2         | 3         |   |   |
| PC20. inspect major components and power supply to reach to the faulty component to be repaired or replaced  | 1         | 3         |   |   |
| PC21. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP                                | 1         | 2         |   |   |
| PC22. remove the faulty component and replace it onsite if possible or send the report to service center for replacement                                   | 2         | 3         |   |   |
| PC23. replace the component in second visit to the site  | 1         | 2         |   |   |
| PC24. reassemble the unit post maintenance and do the trial run  | 1         | 1         |   |   |
| PC25. demonstrate and confirm functionality of the dish washer with the customer   | 1         | 0         |   |   |



### Qualification Pack

|   |           |           |          |          |
|---|-----------|-----------|----------|----------|
| PC26. if the problem cannot be serviced onsite, report and then sent the unit to service center | 1         | 1         |          |          |
| <i>Carryout post installation and repairing activities</i>                                      | 3         | 5         | -        | -        |
| PC27. clear up the packaging material waste and dispose as per company's norms                  | 1         | 1         |          |          |
| PC28. collect the payment if the unit is not in warranty and complete the documentation         | 1         | 1         |          |          |
| PC29. fill the installation or service report and take acknowledgment from the customer         | 1         | 2         |          |          |
| PC30. document the work completed for future records  | 0         | 1         |          |          |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | <b>-</b> | <b>-</b> |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |  |
|---------------------|--|
| NOS Code            | ELE/N3163                              |
| NOS Name            | Installation and repair of dish washer |
| Sector              | Electronics Sector                     |
| Sub-Sector          | Consumer Electronics and IT Hardware   |
| Occupation          | After Sales Service                    |
| NSQF Level          | 4                                      |
| Credits             | TBD                                    |
| Version             | 1.0                                    |
| Last Reviewed Date  | 17/11/2022                             |
| Next Review Date    | 17/11/2025                             |
| NSQC Clearance Date | 17/11/2022                             |

## Qualification Pack

### ELE/N3162: Installation and repair of Air Conditioner

#### Description

This unit is about performing installation and onsite repairing of the air conditioner as per the specifications of the manufacturer and consultation with the customer addressing his/her needs.

#### Scope

The scope covers the following:

- Prepare for installation and repairing of air conditioner
- Install window air conditioner
- Install split air conditioner
- Carryout troubleshooting and repairing of the air conditioner
- Carryout post installation and repairing activities

#### Elements and Performance Criteria

##### *Prepare for installation and repairing of air conditioner*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use
- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the air conditioner packaging and check the product specifications with the billing invoice to identify type (window or split), make and capacity of air conditioner
- PC7. interact with the customer to understand where the air conditioner is to be installed, i.e., window, split etc.
- PC8. check that the location meets structural requirements such as distance from power supply, distance from windows/doors being opened frequently

##### *Install window air conditioner*

To be competent, the user/individual on the job must be able to:

- PC9. measure the space for installation to assure a good fit and air conditioner must be installed firmly into place to prevent vibration and noise
- PC10. install the circuit breaker switch (if not available) and fix all the parts and components of window AC properly as per the instructions in manufacturer manual and SOP
- PC11. install the drain pan over the corner of the cabinet and connect the drain hose to the outlet located on the bottom of the drain pan
- PC12. install the AC unit in the window as per the instructions in manufacturer manual and SOP

### Qualification Pack

- PC13. ensure that the bottom of the cabinet is well supported, the top has minimum clearance and the air inlet louvers have clearance
- PC14. connect the power cord with the circuit breaker switch, start the AC and check the functioning of AC by using remote
- PC15. demonstrate the features and functioning of AC to the customer as per the instructions in manufacturer manual
- PC16. guide the customer on proper placement, day to day care activities and precautions while using the air conditioner

#### *Install split air conditioner*

To be competent, the user/individual on the job must be able to:

- PC17. educate the customer of any pre installations/masonry/electrical work to be carried out and requirement of concealed drainage and electric conduits
- PC18. make measurements at the location identified and drill holes ensuring no internal wiring damage takes place
- PC19. mount the indoor unit and ensure that the screws are fastened securely
- PC20. place the outdoor unit at a suitable location and attach it firmly to wall/floor
- PC21. connect the indoor and the outdoor units using the field copper pipe of appropriate size and interconnecting cables
- PC22. align the air conditioner according to the instruction manual
- PC23. connect the power cord with the circuit breaker switch, start the AC and check the functioning of AC by using remote
- PC24. check the air conditioning gas and fill additional gas (if required) as recommended in the manufacturer's manual
- PC25. demonstrate to the customer about the features and utility of air conditioner
- PC26. guide the customer on proper placement, day to day care activities and precautions while using the air conditioner

#### *Carryout troubleshooting and repairing of the air conditioner*

- PC27. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC28. check the air conditioner for any servicing requirements and clean the air conditioner filter, indoor and outdoor unit, drain hose etc. as per the SOP
- PC29. carry out troubleshooting activities to identify the faults such as power supply failure, less cooling, gas leakage, compressor failure etc. and faulty component in the AC
- PC30. refill the refrigerant gas if required by following instructions in manufacturer manual
- PC31. unplug the unit and carry out basic tests such as power supply inspection, volt ampere test and earth test power supply, compressor, condenser etc.
- PC32. separate and inspect every module of the unit if the fault is not identified through basic tests
- PC33. inspect major components and identify that the faulty component to be repaired or replaced
- PC34. dismantle the component for carrying out repair or replacement after disconnecting it from power supply
- PC35. remove and replace the faulty module with a functional one, either on a second visit or as pre-identified and collected from the service centre, if the problem is at the PCB level or components that cannot be replaced at site

### Qualification Pack

- PC36. reassemble the module and air conditioner in complete and connect to power supply for checking the working
- PC37. check all the modules working as per specifications
- PC38. if the problem cannot be serviced onsite, then sent the unit to service center

### *Carryout post installation and repairing activities*

- PC39. clear up the packaging material waste and dispose as per company's norms
- PC40. collect the payment if the unit is not in warranty and complete the documentation
- PC41. fill the installation or service report and take acknowledgment from the customer
- PC42. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. installation site requirements (structural requirements, ventilation, etc.)
- KU13. different types of air conditioners, e.g., window, split air, cassette conditioners and differences in their operation
- KU14. different features and functionalities of various models
- KU15. manual-based procedure of installing the air conditioner
- KU16. method of air conditioning, its use and functioning of sealed system
- KU17. refrigeration cycle and functioning of the appliance and its various modules
- KU18. method of refrigeration, its use and functioning of refrigerator sealed system
- KU19. functioning of various electromechanical parts of the AC

### Generic Skills (GS)

User/individual on the job needs to know how to:

### Qualification Pack

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowcharts for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision-making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of air conditioner</i>  | 8            | 8               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the air conditioner packaging and check the product specifications with the billing invoice to identify type (window or split), make and capacity of air conditioner  | 1            | 1               |               |            |
| PC7. interact with the customer to understand where the air conditioner is to be installed, i.e., window, split etc.  | 1            | 0               |               |            |
| PC8. check that the location meets structural requirements such as distance from power supply, distance from windows/doors being opened frequently  | 1            | 2               |               |            |
| <i>Install window air conditioner</i>   | 8            | 13              | -             | -          |
| PC9. measure the space for installation to assure a good fit and air conditioner must be installed firmly into place to prevent vibration and noise   | 1            | 2               |               |            |
| PC10. install the circuit breaker switch (if not available) and fix all the parts and components of window AC properly as per the instructions in manufacturer manual and SOP   | 1            | 2               |               |            |

### Qualification Pack

|   |          |           |   |   |
|---|----------|-----------|---|---|
| PC11. install the drain pan over the corner of the cabinet and connect the drain hose to the outlet located on the bottom of the drain pan                | 1        | 2         |   |   |
| PC12. install the AC unit in the window as per the instructions in manufacturer manual and SOP  | 1        | 2         |   |   |
| PC13. ensure that that the bottom of the cabinet is well supported, the top has minimum clearance and the air inlet louvers have clearance                | 1        | 0         |   |   |
| PC14. connect the power cord with the circuit breaker switch, start the AC and check the functioning of AC by using remote                                | 1        | 2         |   |   |
| PC15. demonstrate the features and functioning of AC to the customer as per the instructions in manufacturer manual                                       | 1        | 2         |   |   |
| PC16. guide the customer on proper placement, day to day care activities and precautions while using the air conditioner                                  | 1        | 1         |   |   |
| <b>Install split air conditioner</b>  | <b>9</b> | <b>17</b> | - | - |
| PC17. educate the customer of any pre installations/masonry/electrical work to be carried out and requirement of concealed drainage and electric conduits | 1        | 1         |   |   |
| PC18. make measurements at the location identified and drill holes ensuring no internal wiring damage takes place   | 1        | 2         |   |   |
| PC19. mount the indoor unit and ensure that the screws are fastened securely  | 1        | 2         |   |   |
| PC20. place the outdoor unit at a suitable location and attach it firmly to wall/floor  | 1        | 2         |   |   |
| PC21. connect the indoor and the outdoor units using the field copper pipe of appropriate size and interconnecting cables                                 | 1        | 2         |   |   |
| PC22. align the air conditioner according to the instruction manual   | 1        | 1         |   |   |
| PC23. connect the power cord with the circuit breaker switch, start the AC and check the functioning of AC by using remote                                | 1        | 2         |   |   |
| PC24. check the air conditioning gas and fill additional gas (if required) as recommended in the manufacturer's manual                                    | 1        | 2         |   |   |



### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC25. demonstrate to the customer about the features and utility of air conditioner   | 1         | 2         |   |   |
| PC26. guide the customer on proper placement, day to day care activities and precautions while using the air conditioner  | 0         | 1         |   |   |
| <i>Carryout troubleshooting and repairing of the air conditioner</i>  | <b>12</b> | <b>17</b> | - | - |
| PC27. enquire about the problems/unusual conditions noticed on the equipment from the customer  | 1         | 1         |   |   |
| PC28. check the air conditioner for any servicing requirements and clean the air conditioner filter, indoor and outdoor unit, drain hose etc. as per the SOP  | 1         | 2         |   |   |
| PC29. carry out troubleshooting activities to identify the faults such as power supply failure, less cooling, gas leakage, compressor failure etc. and faulty component in the AC   | 1         | 3         |   |   |
| PC30. refill the refrigerant gas if required by following instructions in manufacturer manual   | 1         | 1         |   |   |
| PC31. unplug the unit and carry out basic tests such as power supply inspection, volt ampere test and earth test power supply, compressor, condenser etc.   | 1         | 2         |   |   |
| PC32. separate and inspect every module of the unit if the fault is not identified through basic tests  | 1         | 1         |   |   |
| PC33. inspect major components and identify that the faulty component to be repaired or replaced  | 1         | 2         |   |   |
| PC34. dismantle the component for carrying out repair or replacement after disconnecting it from power supply   | 1         | 1         |   |   |
| PC35. remove and replace the faulty module with a functional one, either on a second visit or as pre-identified and collected from the service centre, if the problem is at the PCB level or components that cannot be replaced at site | 1         | 2         |   |   |
| PC36. reassemble the module and air conditioner in complete and connect to power supply for checking the working  | 1         | 1         |   |   |

### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC37. check all the modules working as per specifications                               | 1         | 1         |   |   |
| PC38. if the problem cannot be serviced onsite, then sent the unit to service center    | 1         | 0         |   |   |
| <i>Carryout post installation and repairing activities</i>                              | <b>3</b>  | <b>5</b>  | - | - |
| PC39. clear up the packaging material waste and dispose as per company's norms          | 1         | 1         |   |   |
| PC40. collect the payment if the unit is not in warranty and complete the documentation | 1         | 1         |   |   |
| PC41. fill the installation or service report and take acknowledgment from the customer | 1         | 2         |   |   |
| PC42. document the work completed for future records                                    | 0         | 1         |   |   |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |  |
|---------------------|--|
| NOS Code            | ELE/N3162                                  |
| NOS Name            | Installation and repair of air conditioner |
| Sector              | Electronics Sector                         |
| Sub-Sector          | Consumer Electronics and IT Hardware       |
| Occupation          | After Sales Service                        |
| NSQF Level          | 4  |
| Credits             | TBD  |
| Version             | 1.0  |
| Last Reviewed Date  | 17/11/2022                                 |
| Next Review Date    | 17/11/2025                                 |
| NSQC Clearance Date | 17/11/2022                                 |

## Qualification Pack

# ELE/N3161: Gas Charging in Air Conditioner and Refrigerator

## Description

This unit is about performing gas charging in air conditioner and refrigerator.

## Scope

The scope covers the following:

- Prepare for gas charging work
- Gas charging in AC and refrigerator
- Carryout post gas filling activities

## Elements and Performance Criteria

### *Prepare for gas charging work*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the necessary information about the equipment i.e. refrigerator or AC and their model and type and details of the customer for gas charging work
- PC2. collect the necessary tools and equipment required during work
- PC3. select and arrange the appropriate type of gas cylinder and connecting hoses required for filling the equipment on the basis of type and model of equipment

### *Gas charging in air conditioner and refrigerator*

To be competent, the user/individual on the job must be able to:

- PC4. connect a pressure gauge to the gas inlet of AC and refrigerator and check the pressures against the ambient temperature, if gas pressure is below the manufacturer recommended gas pressure, then there is need to fill the gas
- PC5. connect the gas cylinder hose to the gas inlet of AC and refrigerator and start filling the gas
- PC6. check the pressure gauge at regular intervals and once the gas pressure reached to the recommended pressure, then stop the gas filling
- PC7. connect the equipment pipes with the gas inlet and tighten it properly
- PC8. ensure that there is no leakage of gas at the gas inlet
- PC9. start and check the cooling of equipment

### *Carryout post gas filling activities*

- PC10. clear up the waste and dispose as per company's norms
- PC11. collect the payment if the unit is not in warranty and complete the documentation
- PC12. fill the service report and take acknowledgment from the customer
- PC13. document the work completed for future records

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

### Qualification Pack

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. procedure of filling gas in refrigerator and AC
- KU13. refrigeration cycle and functioning of the appliance and its various modules
- KU14. method of refrigeration, its use and functioning of refrigerator sealed system
- KU15. types of refrigerants such as R12, R22, R134a, R290, R600a, R410, R32 use of different brazing sticks, types of brazing torches and their application

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowcharts for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision-making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyse the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognise a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for gas charging work</i>  | 10           | 12              | -             | -          |
| PC1. obtain the necessary information about the equipment i.e. refrigerator or AC and their model and type and details of the customer for gas charging work  | 2            | 4               |               |            |
| PC2. collect the necessary tools and equipment required during work   | 5            | 3               |               |            |
| PC3. select and arrange the appropriate type of gas cylinder and connecting hoses required for filling the equipment on the basis of type and model of equipment  | 3            | 5               |               |            |
| <i>Gas charging in air conditioner and refrigerator</i>   | 22           | 36              | -             | -          |
| PC4. connect a pressure gauge to the gas inlet of AC and refrigerator and check the pressures against the ambient temperature, if gas pressure is below the manufacturer recommended gas pressure, then there is need to fill the gas | 3            | 5               |               |            |
| PC5. connect the gas cylinder hose to the gas inlet of AC and refrigerator and start filling the gas  | 5            | 8               |               |            |
| PC6. check the pressure gauge at regular intervals and once the gas pressure reached to the recommended pressure, then stop the gas filling   | 5            | 8               |               |            |
| PC7. connect the equipment pipes with the gas inlet and tighten it properly   | 3            | 5               |               |            |
| PC8. ensure that there is no leakage of gas at the gas inlet  | 3            | 5               |               |            |
| PC9. start and check the cooling of equipment   | 3            | 5               |               |            |
| <i>Carryout post installation and repairing activities</i>  | 22           | 36              | -             | -          |
| PC10. clear up the waste and dispose as per company's norms   | 1            | 2               |               |            |

### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC11. collect the payment if the unit is not in warranty and complete the documentation | 3         | 4         |   |   |
| PC12. fill the service report and take acknowledgment from the customer                 | 3         | 4         |   |   |
| PC13. document the work completed for future records                                    | 1         | 2         |   |   |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |  |
|---------------------|--|
| NOS Code            | ELE/N3161  |
| NOS Name            | Gas charging in air conditioner and refrigerator |
| Sector              | Electronics Sector                               |
| Sub-Sector          | Consumer Electronics and IT Hardware             |
| Occupation          | After Sales Service                              |
| NSQF Level          | 4  |
| Credits             | TBD  |
| Version             | 1.0  |
| Last Reviewed Date  | 17/11/2022                                       |
| Next Review Date    | 17/11/2025                                       |
| NSQC Clearance Date | 17/11/2022                                       |



## Qualification Pack

### ELE/N3168: Installation and repair of TV

#### Description

This unit is about performing installation and repairing of the TV as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

#### Scope

The scope covers the following:

- Prepare for installation and repairing of TV
- Install TV
- Carryout troubleshooting and repairing of the TV
- Carryout post installation and repairing activities

#### Elements and Performance Criteria

##### *Prepare for installation and repairing of TV*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

##### *Install TV*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the TV packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the space to place the TV as per the need of customer
- PC9. if customer wants to install the TV on a table, place it on the table carefully and plug the power cord in power outlet
- PC10. if customer wants to install the TV on a wall, then first fix the wall mounting bracket and its accessories on the wall as per the instructions in manufacturer manual and SOP
- PC11. remove the TV stand, fix the TV on wall mounting bracket properly and plug the power cord in power outlet as per the instructions in manufacturer manual and SOP
- PC12. connect the TV to a wall antenna socket or a satellite dish socket as per the instructions in manufacturer manual and SOP
- PC13. insert the batteries in remote, turn on the TV and adjust the MENU settings as per customer requirements and instructions in manufacturer manual
- PC14. demonstrate the functions of TV such as use of USB, HDMI cable, wireless connectivity etc.

## Qualification Pack

to the customer

PC15. guide the customer about day-to-day care and precautions while using the TV

### *Carryout troubleshooting and repairing of TV*

PC16. enquire about the problems/unusual conditions noticed on the equipment from the customer

PC17. conduct the physical inspection and check the TV for diagnosing the fault

PC18. unplug the unit, carry out basic tests such as power supply inspection, power supply setting, remote control functioning, etc. as per the instructions in manufacturer manual and SOP

PC19. inspect major components and power supply to reach to the faulty component to be repaired or replaced

PC20. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP

PC21. remove the faulty component and send the report to service center for replacement

PC22. replace the component in second visit to the site

PC23. reassemble the TV in complete, install and connect it to power supply for checking the working

PC24. check all the modules working as per specifications

PC25. If the problem cannot be serviced onsite, report and then sent the unit to service center

### *Carryout post installation and repairing activities*

PC26. clear up the packaging material waste and dispose as per company's norms

PC27. collect the payment if the unit is not in warranty and complete the documentation

PC28. fill the installation or service report and take acknowledgment from the customer

PC29. document the work completed for future records

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

KU1. relevant legislation, standards, policies, and procedures followed in the organization

KU2. health and safety requirements applicable in the workplace

KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.

KU4. methods of accident prevention

KU5. importance of using protective clothing/equipment while working

KU6. general principles for identifying and controlling health and safety risks

KU7. main hazards and preventive as well as control measures while working with different types of equipment

KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control

KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment

KU10. safe working practices while working at various hazardous sites

KU11. health effects associated with exposure to noise and vibration and the appropriate control

## Qualification Pack

measures

- KU12. fundamentals of electricity such as ohms law, difference between ac and dc
- KU13. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs)
- KU14. site installation requirements (structural requirements, tools etc.)
- KU15. different features and functionalities of various TV models
- KU16. procedure of installing the TV
- KU17. functioning of the TV and its various modules
- KU18. functioning of various parts of the TV
- KU19. troubleshooting and repairing activities for TV
- KU20. reports and documents need to fill and maintain related to installation and repairing work

## Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowchart for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognize a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of TV</i>   | 4            | 3               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| <i>Install TV</i>   | <b>12</b>    | 28              | -             | -          |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the TV packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP   | 2            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 2            | 0               |               |            |
| PC8. identify the space to place the TV as per the need of customer   | 1            | 2               |               |            |
| PC9. if customer wants to install the TV on a table, place it on the table carefully and plug the power cord in power outlet  | 2            | 3               |               |            |
| PC10. if customer wants to install the TV on a wall, then first fix the wall mounting bracket and its accessories on the wall as per the instructions in manufacturer manual and SOP  | 1            | 3               |               |            |
| PC11. remove the TV stand, fix the TV on wall mounting bracket properly and plug the power cord in power outlet as per the instructions in manufacturer manual and SOP  | 3            | 5               |               |            |

### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC12. connect the TV to a wall antenna socket or a satellite dish socket as per the instructions in manufacturer manual and SOP   | 2         | 4         |   |   |
| PC13. insert the batteries in remote, turn on the TV and adjust the MENU settings as per customer requirements and instructions in manufacturer manual                                      | 1         | 3         |   |   |
| PC14. demonstrate the functions of TV such as use of USB, HDMI cable, wireless connectivity etc. to the customer  | 2         | 4         |   |   |
| PC15. guide the customer about day-to-day care and precautions while using the TV   | 1         | 1         |   |   |
| <b>Carryout troubleshooting and repairing of TV</b>   | <b>15</b> | <b>24</b> | - | - |
| PC16. enquire about the problems/unusual conditions noticed on the equipment from the customer  | 1         | 1         |   |   |
| PC17. conduct the physical inspection and check the TV for diagnosing the fault   | 2         | 4         |   |   |
| PC18. unplug the unit, carry out basic tests such as power supply inspection, power supply setting. remote control functioning, etc. as per the instructions in manufacturer manual and SOP | 3         | 5         |   |   |
| PC19. inspect major components and power supply to reach to the faulty component to be repaired or replaced   | 2         | 3         |   |   |
| PC20. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP   | 1         | 2         |   |   |
| PC21. remove the faulty component and send the report to service center for replacement   | 1         | 2         |   |   |
| PC22. replace the component in second visit to the site   | 2         | 3         |   |   |
| PC23. reassemble the TV in complete, install and connect it to power supply for checking the working  | 1         | 2         |   |   |
| PC24. check all the modules working as per specifications   | 1         | 1         |   |   |
| PC25. If the problem cannot be serviced onsite, report and then sent the unit to service center   | 1         | 1         |   |   |

### Qualification Pack

| <i>Carryout post installation and repairing activities</i>                              | 3         | 5         | -        | -        |
|---|-----------|-----------|----------|----------|
| PC26. clear up the packaging material waste and dispose as per company's norms          | 1         | 1         |          |          |
| PC27. collect the payment if the unit is not in warranty and complete the documentation | 1         | 1         |          |          |
| PC28. fill the installation or service report and take acknowledgment from the customer | 1         | 2         |          |          |
| PC29. document the work completed for future records                                    | 0         | 1         |          |          |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | <b>-</b> | <b>-</b> |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |                                      |
|---------------------|--------------------------------------|
| NOS Code            | ELE/N3168                            |
| NOS Name            | Installation and repair of TV        |
| Sector              | Electronics Sector                   |
| Sub-Sector          | Consumer Electronics and IT Hardware |
| Occupation          | After Sales Service                  |
| NSQF Level          | 4                                    |
| Credits             | TBD                                  |
| Version             | 1.0                                  |
| Last Reviewed Date  | 17/11/2022                           |
| Next Review Date    | 17/11/2025                           |
| NSQC Clearance Date | 17/11/2022                           |

## Qualification Pack

# ELE/N3167: Installation and repair of Microwave

## Description

This unit is about performing installation and repairing of the microwave as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

## Scope

The scope covers the following:

- Prepare for installation and repairing of microwave
- Install microwave
- Carryout troubleshooting and repairing of the microwave
- Carryout post installation and repairing activities

## Elements and Performance Criteria

### *Prepare for installation and repairing of microwave*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

### *Install microwave*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the microwave packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the space to place the microwave as per the need of customer
- PC9. check for the availability of power outlet surface level, ventilation space from wall and top etc. needed for placing the microwave as per the instructions in manufacturer manual and SOP
- PC10. place the microwave on a flat level surface properly and fix the rotating ring and glass tray inside the oven as per the instructions in manufacturer manual and SOP
- PC11. plug the power cord in the power outlet and start the microwave
- PC12. demonstrate the various cooking functions and safety features of microwave to the customer as per the instructions in manufacturer manual and SOP
- PC13. guide the customer about day-to-day care activities and precautions while using the microwave as mentioned in product manual



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### *Carryout troubleshooting and repairing of microwave*

- PC14. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC15. conduct the physical inspection and check the microwave for diagnosing the fault
- PC16. unplug the unit, carry out basic tests as per the instructions in manufacturer manual and SOP
- PC17. inspect major components and power supply to reach to the faulty component to be repaired or replaced
- PC18. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP
- PC19. remove the faulty component and send the report to service center for replacement
- PC20. replace the component in second visit to the site
- PC21. install and connect it to power supply for checking the working
- PC22. check all the modules working as per specifications
- PC23. If the problem cannot be serviced onsite, report and then sent the unit to service center

### *Carryout post installation and repairing activities*

- PC24. clear up the packaging material waste and dispose as per company's norms
- PC25. collect the payment if the unit is not in warranty and complete the documentation
- PC26. fill the installation or service report and take acknowledgment from the customer
- PC27. document the work completed for future records

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. fundamentals of electricity such as ohms law, difference between ac and dc
- KU13. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs)

### Qualification Pack

- KU14. site installation requirements (structural requirements, tools etc.)
- KU15. different features and functionalities of various microwave models
- KU16. procedure of installing the microwave
- KU17. functioning of the microwave and its various modules
- KU18. functioning of various parts of the microwave
- KU19. troubleshooting and repairing activities for microwave
- KU20. reports and documents need to fill and maintain related to installation and repairing work

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowchart for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognize a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of microwave</i>  | 4            | 3               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| <i>Install microwave</i>  | 17           | 24              | -             | -          |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the microwave packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP  | 2            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 2            | 0               |               |            |
| PC8. identify the space to place the microwave as per the need of customer  | 1            | 2               |               |            |
| PC9. check for the availability of power point, surface level, ventilation space from wall and top etc. needed for placing the microwave as per the instructions in manufacturer manual and SOP                                   | 2            | 3               |               |            |
| PC10. place the microwave on a flat level surface properly and fix the rotating ring and glass tray inside the oven as per the instructions in manufacturer manual and SOP  | 3            | 6               |               |            |
| PC11. plug the power cord in the power outlet and start the microwave   | 2            | 4               |               |            |
| PC12. demonstrate the various cooking functions and safety features of microwave to the customer as per the instructions in   | 3            | 5               |               |            |

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|  |           |           |   |   |
|--|-----------|-----------|---|---|
| manufacturer manual and SOP  |           |           |   |   |
| PC13. guide the customer about day-to-day care activities and precautions while using the microwave as mentioned in product manual | 1         | 1         |   |   |
| <b>Carryout troubleshooting and repairing of microwave</b>   | <b>16</b> | <b>28</b> | - | - |
| PC14. enquire about the problems/unusual conditions noticed on the equipment from the customer                                     | 1         | 1         |   |   |
| PC15. conduct the physical inspection and check the microwave for diagnosing the fault   | 2         | 5         |   |   |
| PC16. unplug the unit, carry out basic tests as per the instructions in manufacturer manual and SOP                                | 3         | 5         |   |   |
| PC17. inspect major components and power supply to reach to the faulty component to be repaired or replaced                        | 2         | 4         |   |   |
| PC18. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP        | 1         | 2         |   |   |
| PC19. remove the faulty component and send the report to service center for replacement  | 1         | 2         |   |   |
| PC20. replace the component in second visit to the site  | 2         | 3         |   |   |
| PC21. install and connect it to power supply for checking the working  | 2         | 3         |   |   |
| PC22. check all the modules working as per specifications  | 1         | 2         |   |   |
| PC23. If the problem cannot be serviced onsite, report and then sent the unit to service center                                    | 1         | 1         |   |   |
| <b>Carryout post installation and repairing activities</b>   | <b>3</b>  | <b>5</b>  | - | - |
| PC24. clear up the packaging material waste and dispose as per company's norms   | 1         | 1         |   |   |
| PC25. collect the payment if the unit is not in warranty and complete the documentation  | 1         | 1         |   |   |
| PC26. fill the installation or service report and take acknowledgment from the customer  | 1         | 2         |   |   |
| PC27. document the work completed for future records   | 0         | 1         |   |   |
| <b>NOS Total</b>   | <b>40</b> | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |                                      |
|---------------------|--------------------------------------|
| NOS Code            | ELE/N3167                            |
| NOS Name            | Installation and repair of microwave |
| Sector              | Electronics Sector                   |
| Sub-Sector          | Consumer Electronics and IT Hardware |
| Occupation          | After Sales Service                  |
| NSQF Level          | 4                                    |
| Credits             | TBD                                  |
| Version             | 1.0                                  |
| Last Reviewed Date  | 17/11/2022                           |
| Next Review Date    | 17/11/2025                           |
| NSQC Clearance Date | 17/11/2022                           |

## Qualification Pack

### ELE/N3166: Installation and repair of Water Purifier

#### Description

This unit is about performing installation and repairing of the water purifier as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

#### Scope

The scope covers the following:

- Prepare for installation and repairing of water purifier
- Install water purifier
- Carryout troubleshooting and repairing of the water purifier
- Carryout post installation and repairing activities

#### Elements and Performance Criteria

##### *Prepare for installation and repairing of water purifier*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

##### *Install water purifier*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the water purifier packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the place to fix the water purifier as per the need of customer
- PC9. check for the availability of power outlet, surface level, water supply etc. needed for installing the water purifier as per the instructions in manufacturer manual and SOP
- PC10. fix the wall mounting bracket and its accessories on the wall as per the instructions in manufacturer manual and SOP
- PC11. fix the water purifier properly on the mounting bracket as per the instructions in manufacturer manual and SOP
- PC12. connect the water hose and drain pipe with the water purifier and water supply tap as per the instructions in manufacturer manual and SOP
- PC13. plug the power cord in the power outlet, start the water purifier and open the water supply valve
- PC14. check the pipe and hose connection for water leaks

### Qualification Pack

- PC15. fill the purifier tank and discharge some water for the first time
- PC16. set the water purification setting as per the running water quality and manufacturer instructions
- PC17. demonstrate the features, functioning and use of control panel of water purifier to the customer as per the instructions in manufacturer manual and SOP
- PC18. guide the customer about day-to-day care activities and precautions while using the water purifier as mentioned in product manual

#### *Carryout troubleshooting and repairing of water purifier*

- PC19. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC20. check the water purifier for any servicing requirements and clean its filter, drain and water hose etc. as per the SOP
- PC21. conduct the physical inspection and check the water purifier for diagnosing the fault
- PC22. unplug the unit, carry out basic tests as per the instructions in manufacturer manual and SOP
- PC23. check the filter for any cleaning or replacement requirements
- PC24. clean or change the filter as per the requirement
- PC25. inspect major components and power supply to reach to the faulty component to be repaired or replaced
- PC26. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP
- PC27. remove the faulty component and replace it onsite if possible or send the report to service center for replacement
- PC28. replace the component in second visit to the site
- PC29. install and connect it to power supply for checking the working
- PC30. check all the modules working as per specifications
- PC31. If the problem cannot be serviced onsite, report and then sent the unit to service center

#### *Carryout post installation and repairing activities*

- PC32. clear up the packaging material waste and dispose as per company's norms
- PC33. collect the payment if the unit is not in warranty and complete the documentation
- PC34. fill the installation or service report and take acknowledgment from the customer
- PC35. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working

### Qualification Pack

- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. fundamentals of electricity such as ohms law, difference between ac and dc
- KU13. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs
- KU14. site installation requirements (structural requirements, tools etc.)
- KU15. different features and functionalities of various water purifier models
- KU16. procedure of installing the water purifier
- KU17. functioning of the water purifier and its various modules
- KU18. functioning of various parts of the water purifier
- KU19. troubleshooting and repairing activities for water purifier
- KU20. reports and documents need to fill and maintain related to installation and repairing work

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowchart for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognize a workplace problem and take suitable action to resolve it



## Assessment Criteria

## Qualification Pack

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of water purifier</i>   | 4            | 3               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| <i>Install water purifier</i>   | 17           | 29              | -             | -          |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the water purifier packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP   | 1            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 1            | 0               |               |            |
| PC8. identify the place to fix the water purifier as per the need of customer   | 1            | 2               |               |            |
| PC9. check for the availability of power point, surface level, water supply etc. needed for installing the water purifier as per the instructions in manufacturer manual and SOP  | 1            | 2               |               |            |
| PC10. fix the wall mounting bracket and its accessories on the wall as per the instructions in manufacturer manual and SOP  | 1            | 3               |               |            |
| PC11. fix the water purifier properly on the mounting bracket as per the instructions in manufacturer manual and SOP  | 1            | 3               |               |            |
| PC12. connect the water hose and pipe with the water purifier and water supply valve as per the instructions in manufacturer manual and   | 2            | 4               |               |            |

| SOP   | Qualification Pack |           |   |   |
|---|--------------------|-----------|---|---|
| PC13. plug the power cord in the power outlet, start the water purifier and open the water supply valve   | 2                  | 4         |   |   |
| PC14. check the pipe and hose connection for water leaks  | 1                  | 2         |   |   |
| PC15. fill the purifier tank and discharge some water for the first time  | 1                  | 1         |   |   |
| PC16. set the water purification setting as per the running water quality and manufacturer instructions   | 2                  | 2         |   |   |
| PC17. demonstrate the features, functioning and use of control panel of water purifier to the customer as per the instructions in manufacturer manual and SOP | 1                  | 2         |   |   |
| PC18. guide the customer about day-to-day care activities and precautions while using the water purifier as mentioned in product manual                       | 1                  | 1         |   |   |
| <b>Carryout troubleshooting and repairing of water purifier</b>   | <b>16</b>          | <b>23</b> | - | - |
| PC19. enquire about the problems/unusual conditions noticed on the equipment from the customer  | 1                  | 1         |   |   |
| PC20. check the water purifier for any servicing requirements and clean its filter, drain and water hose etc. as per the SOP                                  | 2                  | 3         |   |   |
| PC21. conduct the physical inspection and check the water purifier for diagnosing the fault   | 2                  | 4         |   |   |
| PC22. unplug the unit, carry out basic tests as per the instructions in manufacturer manual and SOP   | 2                  | 3         |   |   |
| PC23. check the filter for any cleaning or replacement requirements   | 1                  | 1         |   |   |
| PC24. clean or change the filter as per the requirement   | 1                  | 2         |   |   |
| PC25. inspect major components and power supply to reach to the faulty component to be repaired or replaced   | 1                  | 2         |   |   |
| PC26. dismantle the component for carrying out repair or replacement as per the   | 1                  | 2         |   |   |

| instructions in manufacturer manual and SOP  | Qualification Pack |           |   |   |
|--|--------------------|-----------|---|---|
| PC27. remove the faulty component and replace it onsite if possible or send the report to service center for replacement | 1                  | 2         |   |   |
| PC28. replace the component in second visit to the site  | 1                  | 1         |   |   |
| PC29. install and connect it to power supply for checking the working  | 1                  | 1         |   |   |
| PC30. check all the modules working as per specifications  | 1                  | 1         |   |   |
| PC31. If the problem cannot be serviced onsite, report and then sent the unit to service center                          | 1                  | 0         |   |   |
| <i>Carryout post installation and repairing activities</i>   | <b>3</b>           | <b>5</b>  | - | - |
| PC32. clear up the packaging material waste and dispose as per company's norms   | 1                  | 1         |   |   |
| PC33. collect the payment if the unit is not in warranty and complete the documentation                                  | 1                  | 1         |   |   |
| PC34. fill the installation or service report and take acknowledgment from the customer                                  | 1                  | 2         |   |   |
| PC35. document the work completed for future records   | 0                  | 1         |   |   |
| <b>NOS Total</b>   | <b>40</b>          | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |   |
|---------------------|---|
| NOS Code            | ELE/N3166                                 |
| NOS Name            | Installation and repair of water purifier |
| Sector              | Electronics Sector                        |
| Sub-Sector          | Consumer Electronics and IT Hardware      |
| Occupation          | After Sales Service                       |
| NSQF Level          | 4   |
| Credits             | TBD                                       |
| Version             | 1.0                                       |
| Last Reviewed Date  | 17/11/2022                                |
| Next Review Date    | 17/11/2025                                |
| NSQC Clearance Date | 17/11/2022                                |

## Qualification Pack

# ELE/N3165: Installation and repair of basic refrigerator and washing machine

## Description

This unit is about performing installation and onsite repairing of the basic refrigerator and washing machine as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

## Scope

The scope covers the following:

- Prepare for installation and repairing work
- Installation and servicing of refrigerator
- Installation and servicing of washing machine
- Carryout post installation and repairing activities

## Elements and Performance Criteria

### *Prepare for installation and repairing work*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use
- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments

### *Installation and servicing of refrigerator*

To be competent, the user/individual on the job must be able to:

- PC6. remove the refrigerator packaging and check the product specifications with the billing invoice for colour, make and capacity
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the space to place the refrigerator as per the need of customer
- PC9. check for the distance from wall, availability of power outlet, and platform height needed for placing the refrigerator
- PC10. place the refrigerator and connect it to the power outlet
- PC11. start the refrigerator, set temperature parameters and demonstrate the functions of refrigerator to the customer
- PC12. guide the customer on proper placement, day to day care activities and precautions while using the refrigerator
- PC13. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC14. check the refrigerator for any gas refill requirement and refill the gas as per SOP

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- PC15. carry out troubleshooting of refrigerator to identify faults i.e. gas leakage, cooling problem, compressor problem, power supply problem etc. and faulty components as per SOP
- PC16. repair or replace the faulty component as per the requirement
- PC17. reassemble the refrigerator in complete, install and connect it to power supply for checking the working
- PC18. check all the modules working as per specifications
- PC19. If the problem cannot be serviced onsite, report and then sent the unit to service center

### *Installation and servicing of washing machine*

To be competent, the user/individual on the job must be able to:

- PC20. remove the washing machine packaging and check the product specifications with the billing invoice for colour, make and capacity
- PC21. check that all supporting accessories purchased are there in the pack
- PC22. identify the space to place the washing machine as per the need of customer
- PC23. check for the distance from wall, availability of power outlet etc. needed for placing the washing machine
- PC24. place the washing machine and install the drain hose
- PC25. connect the washing machine and start it to demonstrate the functions of washing machine and use of wash setting buttons to the customer
- PC26. guide the customer on proper placement, day to day care activities and precautions while using the washing machine
- PC27. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC28. check the washing machine for any cleaning requirement and clean the water drum, drain etc. as per SOP
- PC29. carry out troubleshooting of washing machine to identify faults such as motor failure, power supply problem etc. and faulty components as per SOP
- PC30. repair or replace the component as per SOP
- PC31. reassemble the machine in complete, install and connect it to power supply for checking the working
- PC32. check all the modules working as per specifications
- PC33. If the problem cannot be serviced onsite, report and then sent the unit to service center

### *Carryout post installation and repairing activities*

- PC34. clear up the packaging material waste and dispose as per company's norms
- PC35. collect the payment if the unit is not in warranty and complete the documentation
- PC36. fill the installation or service report and take acknowledgment from the customer
- PC37. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as

### Qualification Pack

physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.

- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control
- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. installation site requirements (structural requirements, ventilation, etc.)
- KU13. different types of refrigerators and washing machine
- KU14. different features and functionalities of various models
- KU15. procedure of installing the refrigerators and washing machine
- KU16. refrigeration cycle and functioning of the appliance and its various modules
- KU17. method of refrigeration, its use and functioning of refrigerator sealed system
- KU18. types of refrigerants such as R12, R22, R134a, R290, R600a, R410, R32 use of different brazing sticks, types of brazing torches and their application
- KU19. troubleshooting and repairing of faults in refrigerator and washing machine

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowchart for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognize a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of water purifier</i>   | 5            | 5               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| <i>Install and servicing of refrigerator</i>  | 17           | 24              | -             | -          |
| PC6. remove the refrigerator packaging and check the product specifications with the billing invoice for colour, make and capacity  | 1            | 1               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 1            | 0               |               |            |
| PC8. identify the space to place the refrigerator as per the need of customer   | 1            | 2               |               |            |
| PC9. check for the distance from wall, availability of power point, and platform height needed for placing the refrigerator   | 1            | 2               |               |            |
| PC10. Place the refrigerator and connect it to the power point  | 1            | 1               |               |            |
| PC11. start the refrigerator, set temperature parameters and demonstrate the functions of refrigerator to the customer  | 2            | 5               |               |            |
| PC12. guide the customer on proper placement, day to day care activities and precautions while using the refrigerator   | 1            | 1               |               |            |
| PC13. enquire about the problems/unusual conditions noticed on the equipment from the customer  | 1            | 1               |               |            |



### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC14.check the refrigerator for any gas refill requirement and refill the gas as per SOP  | 1         | 1         |   |   |
| PC15.carry out troubleshooting of refrigerator to identify faults i.e. gas leakage, cooling problem, compressor problem, power supply problem etc. and faulty components as per SOP | 2         | 4         |   |   |
| PC16.repair or replace the faulty component as per the requirement  | 2         | 3         |   |   |
| PC17.reassemble the refrigerator in complete, install and connect it to power supply for checking the working   | 1         | 2         |   |   |
| PC18.check all the modules working as per specifications  | 1         | 1         |   |   |
| PC19.If the problem cannot be serviced onsite, report and then sent the unit to service center  | 1         | 0         |   |   |
| <b><i>Install and servicing of washing machine</i></b>  | <b>15</b> | <b>26</b> | - | - |
| PC20.remove the washing machine packaging and check the product specifications with the billing invoice for colour, make and capacity   | 1         | 1         |   |   |
| PC21.check that all supporting accessories purchased are there in the pack  | 2         | 0         |   |   |
| PC22.identify the space to place the washing machine as per the need of customer  | 1         | 1         |   |   |
| PC23.check for the distance from wall, availability of power point etc. needed for placing the washing machine  | 1         | 3         |   |   |
| PC24.place the washing machine and install the drain hose   | 2         | 3         |   |   |
| PC25.connect the washing machine and start it to demonstrate the functions of washing machine and use of wash setting buttons to the customer                                       | 2         | 4         |   |   |
| PC26.guide the customer on proper placement, day to day care activities and precautions while using the washing machine   | 0         | 1         |   |   |
| PC27.enquire about the problems/unusual conditions noticed on the equipment from the customer   | 0         | 1         |   |   |
| PC28.check the washing machine for any cleaning requirement and clean the water drum, drain etc. as per SOP   | 1         | 2         |   |   |

### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC29. carry out troubleshooting of washing machine to identify faults such as motor failure, power supply problem etc. and faulty components as per SOP | 2         | 4         |   |   |
| PC30. repair or replace the component as per SOP  | 1         | 3         |   |   |
| PC31. reassemble the machine in complete, install and connect it to power supply for checking the working   | 1         | 2         |   |   |
| PC32. check all the modules working as per specifications   | 0         | 1         |   |   |
| PC33. If the problem cannot be serviced onsite, report and then sent the unit to service center   | 1         | 0         |   |   |
| <i>Carryout post installation and repairing activities</i>  | <b>3</b>  | <b>5</b>  | - | - |
| PC34. clear up the packaging material waste and dispose as per company's norms  | 1         | 1         |   |   |
| PC35. collect the payment if the unit is not in warranty and complete the documentation   | 1         | 1         |   |   |
| PC36. fill the installation or service report and take acknowledgment from the customer   | 1         | 2         |   |   |
| PC37. document the work completed for future records  | 0         | 1         |   |   |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | - | - |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |   |
|---------------------|---|
| NOS Code            | ELE/N3165   |
| NOS Name            | Installation and repair of basic Refrigerator and Washing machine |
| Sector              | Electronics Sector  |
| Sub-Sector          | Consumer Electronics & IT Hardware                                |
| Occupation          | After Sales Service   |
| NSQF Level          | 4   |
| Credits             | TBD   |
| Version             | 1.0   |
| Last Reviewed Date  | 17/11/2022  |
| Next Review Date    | 17/11/2025  |
| NSQC Clearance Date | 17/11/2022  |

## Qualification Pack

# ELE/N3164: Installation and repair of OLED/Monitor TV

## Description

This unit is about performing installation and repairing of the OLED TV/monitor as per the specifications of the manufacturer and consultation with the customer addressing his/her needs

## Scope

The scope covers the following:

- Prepare for installation and repairing of OLED/monitor
- Install OLED TV/monitor
- Carryout troubleshooting and repairing of the OLED TV/monitor
- Carryout post installation and repairing activities

## Elements and Performance Criteria

### *Prepare for installation and repairing of OLED/monitor*

To be competent, the user/individual on the job must be able to:

- PC1. obtain the information and details of the customer for installation and repairing work
- PC2. collect the necessary tools and equipment required for installation and repairing work
- PC3. check the functionality of tools and equipment before use

### *Install OLED TV/monitor*

To be competent, the user/individual on the job must be able to:

- PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards
- PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments
- PC6. remove the OLED TV/monitor packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP
- PC7. check that all supporting accessories purchased are there in the pack
- PC8. identify the space to place the OLED TV/monitor as per the need of customer
- PC9. if customer wants to install the OLED TV/monitor on a table, place it on the table carefully and plug the power cord in power outlet
- PC10. if customer wants to install the OLED TV/monitor on a wall, then first fix the wall mounting bracket and its accessories on the wall as per the instructions in manufacturer manual and SOP
- PC11. remove the OLED TV/monitor stand, fix the OLED TV/monitor on wall mounting bracket properly and plug the power cord in power outlet as per the instructions in manufacturer manual and SOP
- PC12. connect the OLED TV to a wall antenna socket or a satellite dish socket and monitor with the PC as per the instructions in manufacturer manual and SOP
- PC13. turn on the OLED TV/monitor and adjust the MENU settings as per customer requirements

### Qualification Pack

and instructions in manufacturer manual

- PC14. connect the smart devices with OLED TV/monitor as per the customer requirements and instructions in manufacturer manual
- PC15. demonstrate the functions of OLED TV/monitor to the customer
- PC16. guide the customer on proper placement, day to care and precautions while using the OLED TV/monitor

#### *Carryout troubleshooting and repairing of OLED TV/monitor*

- PC17. enquire about the problems/unusual conditions noticed on the equipment from the customer
- PC18. conduct the physical inspection and check the OLED TV/monitor for diagnosing the fault
- PC19. unplug the unit, carry out basic tests such as power supply inspection, power supply setting, remote control functioning, etc. as per the instructions in manufacturer manual and SOP
- PC20. inspect major components and power supply to reach to the faulty component to be repaired or replaced
- PC21. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP
- PC22. remove the faulty component and send the report to service center for replacement
- PC23. replace the component in second visit to the site
- PC24. reassemble the OLED TV/monitor in complete, install and connect it to power supply for checking the working
- PC25. check all the modules working as per specifications
- PC26. If the problem cannot be serviced onsite, report and then sent the unit to service center

#### *Carryout post installation and repairing activities*

- PC27. clear up the packaging material waste and dispose as per company's norms
- PC28. collect the payment if the unit is not in warranty and complete the documentation
- PC29. fill the installation or service report and take acknowledgment from the customer
- PC30. document the work completed for future records

### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1. relevant legislation, standards, policies, and procedures followed in the organization
- KU2. health and safety requirements applicable in the workplace
- KU3. various types of health and safety hazards commonly present in the work environment such as physical hazards, electrical hazards, chemical hazards, fire hazards, equipment related hazards, health hazards, etc.
- KU4. methods of accident prevention
- KU5. importance of using protective clothing/equipment while working
- KU6. general principles for identifying and controlling health and safety risks
- KU7. main hazards and preventive as well as control measures while working with different types of equipment
- KU8. importance of carrying out electrical and non-electrical isolation to prevent hazards from loss of machine/system/process control

### Qualification Pack

- KU9. main hazards and preventive as well as control measures when working with electrical systems or using electrical equipment
- KU10. safe working practices while working at various hazardous sites
- KU11. health effects associated with exposure to noise and vibration and the appropriate control measures
- KU12. fundamentals of electricity such as ohms law, difference between ac and dc
- KU13. basic electronics (knowledge of components such as diode, transformer, LED, photo transistor, capacitor, resistor, inductor, thermistor, ICs)
- KU14. site installation requirements (structural requirements, tools etc.)
- KU15. different features and functionalities of various OLED TV/monitor models
- KU16. procedure of installing the OLED TV/monitor
- KU17. functioning of the OLED TV/monitor and its various modules
- KU18. functioning of various parts of the OLED TV/monitor
- KU19. troubleshooting and repairing activities for OLED TV/monitor
- KU20. reports and documents need to fill and maintain related to installation and repairing work

### Generic Skills (GS)

User/individual on the job needs to know how to:

- GS1. note the information related to work and processes
- GS2. write reports and observations related to work in English/regional language
- GS3. read and interpret and process flowchart for all operations
- GS4. read manuals and operation documents to understand the Equipment used into operation
- GS5. discuss task lists, schedules and activities with the seniors and team members
- GS6. follow organization rule-based decision making process
- GS7. take decisions with systematic course of actions and/or response
- GS8. plan and organize tasks to meet deadlines
- GS9. find ways of modifying difficult operating stages to make it operation friendly
- GS10. apply domain information to set and define operation parameters that ensures economy and quality of the product
- GS11. analyze the complexity of work to determine if it can be successfully carried out or needs to be referred to a superior/specialist
- GS12. recognize a workplace problem and take suitable action to resolve it

## Qualification Pack

### Assessment Criteria

| Assessment Criteria for Outcomes  | Theory Marks | Practical Marks | Project Marks | Viva Marks |
|---|--------------|-----------------|---------------|------------|
| <i>Prepare for installation and repairing of OLED/monitor</i>   | 4            | 3               | -             | -          |
| PC1. obtain the information and details of the customer for installation and repairing work   | 1            | 0               |               |            |
| PC2. collect the necessary tools and equipment required for installation and repairing work   | 2            | 1               |               |            |
| PC3. check the functionality of tools and equipment before use  | 1            | 2               |               |            |
| <i>Install OLED/monitor TV</i>  | 20           | 28              | -             | -          |
| PC4. use appropriate personal protective equipment (PPE) for specific tasks and work conditions, contaminant (concentration w.r.t air) requirements and severity of hazard while conforming to the Indian/International standards | 1            | 1               |               |            |
| PC5. follow standard safety procedures while handling tool, equipment, hazardous substances and while working in hazardous environments   | 0            | 1               |               |            |
| PC6. remove the OLED/monitor TV packaging and check the product specifications with the billing invoice as per the instructions in manufacturer manual and SOP  | 1            | 2               |               |            |
| PC7. check that all supporting accessories purchased are there in the pack  | 2            | 0               |               |            |
| PC8. identify the space to place the OLED/monitor TV as per the need of customer  | 1            | 2               |               |            |
| PC9. if customer wants to install the TV on a table, place it on the table carefully and plug the power cord in power outlet  | 1            | 2               |               |            |
| PC10. if customer wants to install the TV on a wall, then first fix the wall mounting bracket and its accessories on the wall as per the instructions in manufacturer manual and SOP  | 3            | 4               |               |            |
| PC11. fix the TV on wall mounting bracket properly and plug the power cord in power outlet as per the instructions in manufacturer manual and SOP   | 3            | 4               |               |            |

### Qualification Pack

|   |           |           |   |   |
|---|-----------|-----------|---|---|
| PC12. connect the TV to a wall antenna socket or a satellite dish socket as per the instructions in manufacturer manual and SOP   | 2         | 3         |   |   |
| PC13. insert the batteries in remote, turn on the TV and adjust the MENU as per customer requirements and instructions in manufacturer manual   | 2         | 3         |   |   |
| PC14. connect the smart devices with TV as per the customer requirements and instructions in manufacturer manual  | 1         | 2         |   |   |
| PC15. demonstrate the functions of OLED/monitor TV to the customer  | 2         | 3         |   |   |
| PC16. guide the customer on proper placement, day to care and precautions while using the OLED/monitor TV   | 1         | 1         |   |   |
| <b>Carryout troubleshooting and repairing of OLED/monitor TV</b>  | <b>13</b> | <b>24</b> | - | - |
| PC17. enquire about the problems/unusual conditions noticed on the equipment from the customer  | 1         | 1         |   |   |
| PC18. conduct the physical inspection and check the TV for diagnosing the fault   | 2         | 4         |   |   |
| PC19. unplug the unit, carry out basic tests such as power supply inspection, power supply setting. remote control functioning, etc. as per the instructions in manufacturer manual and SOP | 2         | 4         |   |   |
| PC20. inspect major components and power supply to reach to the faulty component to be repaired or replaced   | 2         | 3         |   |   |
| PC21. dismantle the component for carrying out repair or replacement as per the instructions in manufacturer manual and SOP   | 1         | 2         |   |   |
| PC22. remove the faulty component and send the report to service center for replacement   | 1         | 2         |   |   |
| PC23. replace the component in second visit to the site   | 1         | 2         |   |   |
| PC24. reassemble the TV in complete, install and connect it to power supply for checking the working  | 1         | 2         |   |   |
| PC25. check all the modules working as per  | 1         | 2         |   |   |



### Qualification Pack

|   |           |           |          |          |
|---|-----------|-----------|----------|----------|
| specifications  |           |           |          |          |
| PC26. If the problem cannot be serviced onsite, report and then sent the unit to service center | 1         | 2         |          |          |
| <i>Carryout post installation and repairing activities</i>                                      | 3         | 5         | -        | -        |
| PC27. clear up the packaging material waste and dispose as per company's norms                  | 1         | 1         |          |          |
| PC28. collect the payment if the unit is not in warranty and complete the documentation         | 1         | 1         |          |          |
| PC29. fill the installation or service report and take acknowledgment from the customer         | 1         | 2         |          |          |
| PC30. document the work completed for future records  | 0         | 1         |          |          |
| <b>NOS Total</b>  | <b>40</b> | <b>60</b> | <b>-</b> | <b>-</b> |

## Qualification Pack

### National Occupational Standards (NOS) Parameters

|                     |  |
|---------------------|--|
| NOS Code            | ELE/N3164                                  |
| NOS Name            | Installation and repair of OLED TV/Monitor |
| Sector              | Electronics Sector                         |
| Sub-Sector          | Consumer Electronics and IT Hardware       |
| Occupation          | After Sales Service                        |
| NSQF Level          | 4  |
| Credits             | TBD  |
| Version             | 1.0  |
| Last Reviewed Date  | 17/11/2022                                 |
| Next Review Date    | 17/11/2025                                 |
| NSQC Clearance Date | 17/11/2022                                 |

## Qualification Pack

### Assessment Guidelines and Assessment Weightage

#### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below.)
4. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
5. To pass the Qualification Pack, every trainee should score a minimum of 70% in every NOS.
6. In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

#### Minimum Aggregate Passing % at QP Level : 70

(Please note: Every Trainee should score a minimum aggregate passing percentage as specified above, to successfully clear the Qualification Pack assessment.)

#### Assessment Weightage

##### Compulsory NOS

| National Occupational Standards                     | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---|--------------|-----------------|---------------|------------|-------------|-----------|
| DGT/VSQ/N0102:<br>Employability Skills<br>(60Hours) | 20           | 30              | -             | -          | 50          | 5         |
| <b>Total</b>  | <b>20</b>    | <b>30</b>       | <b>-</b>      | <b>-</b>   | <b>50</b>   | <b>5</b>  |

##### Elective 1- NOS

| National Occupational Standards | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|---------------------------------|--------------|-----------------|---------------|------------|-------------|-----------|
|---------------------------------|--------------|-----------------|---------------|------------|-------------|-----------|

### Qualification Pack

|   |            |            |          |          |            |           |
|---|------------|------------|----------|----------|------------|-----------|
| ELE/N3169: Installation and repair of Refrigerator (DIOS) | 40         | 60         | -        | -        | 100        | 20        |
| ELE/N3170: Installation and repair of Washing machine     | 40         | 60         | -        | -        | 100        | 20        |
| ELE/N3163: Installation and repair of Dish Washer         | 40         | 60         | -        | -        | 100        | 20        |
| ELE/N3162: Installation and repair of Air Conditioner     | 40         | 60         | -        | -        | 100        | 20        |
| ELE/N3161: Gas Charging in the refrigerator and AC        | 40         | 60         | -        | -        | 100        | 15        |
| <b>Total</b>  | <b>200</b> | <b>300</b> | <b>-</b> | <b>-</b> | <b>500</b> | <b>95</b> |

### Elective 2- NOS

| National Occupational Standards  | Theory Marks | Practical Marks | Project Marks | Viva Marks | Total Marks | Weightage |
|--|--------------|-----------------|---------------|------------|-------------|-----------|
| ELE/N3168: Installation and repair of Television                             | 40           | 60              | -             | -          | 100         | 20        |
| ELE/N3167: Installation and repair of Microwave                              | 40           | 60              | -             | -          | 100         | 20        |
| ELE/N3166: Installation and repair of Water Purifier                         | 40           | 60              | -             | -          | 100         | 20        |
| ELE/N3165: Installation and repair of basic refrigerator and washing machine | 40           | 60              | -             | -          | 100         | 20        |
| ELE/N3164: Installation and repair of OLED/ Monitor                          | 40           | 60              | -             | -          | 100         | 15        |
| <b>Total</b>   | <b>200</b>   | <b>300</b>      | <b>-</b>      | <b>-</b>   | <b>500</b>  | <b>95</b> |

## Qualification Pack

### Acronyms

|      |   |
|------|---|
| NOS  | National Occupational Standard(s)               |
| NSQF | National Skills Qualifications Framework        |
| QP   | Qualifications Pack                             |
| TVET | Technical and Vocational Education and Training |
| PPE  | Personal Protective Equipment                   |
| SOP  | Standard Operating Procedure                    |

## Qualification Pack

### Glossary

|  |  |
|--|--|
| <b>Sector</b>                                | Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.  |
| <b>Sub-sector</b>                            | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.   |
| <b>Occupation</b>                            | Occupation is a set of job roles, which perform similar/ related set of functions in an industry.  |
| <b>Job role</b>                              | Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.  |
| <b>Occupational Standards (OS)</b>           | OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the Knowledge and Understanding (KU) they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts. |
| <b>Performance Criteria (PC)</b>             | Performance Criteria (PC) are statements that together specify the standard of performance required when carrying out a task.  |
| <b>National Occupational Standards (NOS)</b> | NOS are occupational standards which apply uniquely in the Indian context.   |
| <b>Qualifications Pack (QP)</b>              | QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.   |
| <b>Unit Code</b>                             | Unit code is a unique identifier for an Occupational Standard, which is denoted by an 'N'  |
| <b>Unit Title</b>                            | Unit title gives a clear overall statement about what the incumbent should be able to do.  |
| <b>Description</b>                           | Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.   |
| <b>Scope</b>                                 | Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.  |

## Qualification Pack

|   |  |
|---|--|
| <b>Knowledge and Understanding (KU)</b> | Knowledge and Understanding (KU) are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.   |
| <b>Organisational Context</b>           | Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.   |
| <b>Technical Knowledge</b>              | Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.   |
| <b>Core Skills/ Generic Skills (GS)</b> | Core skills or Generic Skills (GS) are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. These skills are typically needed in any work environment. In the context of the OS, these include communication related skills that are applicable to most job roles. |
| <b>Electives</b>                        | Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.  |
| <b>Options</b>                          | Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.  |
| <b>Sector</b>                           | Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.  |
| <b>Sub-sector</b>                       | Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.   |
| <b>Occupation</b>                       | Occupation is a set of job roles, which perform similar/ related set of functions in an industry.  |
| <b>Job Role</b>                         | Job role defines a unique set of functions that together form a unique employment opportunity in an organisation.  |
| <b>Occupational Standards (OS)</b>      | OS specify the standards of performance an individual must achieve when carrying out a function in the workplace, together with the knowledge and understanding they need to meet that standard consistently. Occupational Standards are applicable both in the Indian and global contexts.  |
| <b>Performance Criteria</b>             | Performance criteria are statements that together specify the standard of performance required when carrying out a task.   |

## Qualification Pack

|                                       |  |
|---------------------------------------|--|
| <b>National Occupational Standard</b> | NOS are occupational standards which apply uniquely in the Indian context.   |
| <b>Qualifications Pack (QP)</b>       | QP comprises the set of OSs, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualifications pack code.  |
| <b>Electives</b>                      | Electives are NOS/set of NOS that are identified by the sector as contributive to specialization in a job role. There may be multiple electives within a QP for each specialized job role. Trainees must select at least one elective for the successful completion of a QP with Electives.            |
| <b>Options</b>                        | Options are NOS/set of NOS that are identified by the sector as additional skills. There may be multiple options within a QP. It is not mandatory to select any of the options to complete a QP with Options.  |
| <b>Unit Code</b>                      | Unit code is a unique identifier for an Occupational Standard, which is denoted by an N.   |
| <b>Unit Title</b>                     | Unit title gives a clear overall statement about what the incumbent should be able to do.  |
| <b>Description</b>                    | Description gives a short summary of the unit content. This would be helpful to anyone searching on a database to verify that this is the appropriate OS they are looking for.   |
| <b>Scope</b>                          | Scope is a set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on quality of performance required.  |
| <b>Knowledge and Understanding</b>    | Knowledge and understanding are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual need to perform to the required standard.  |
| <b>Organisational Context</b>         | Organisational context includes the way the organisation is structured and how it operates, including the extent of operative knowledge managers have of their relevant areas of responsibility.   |
| <b>Technical Knowledge</b>            | Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.   |
| <b>Core Skills/Generic Skills</b>     | Core skills or generic skills are a group of skills that are the key to learning and working in today's world. These skills are typically needed in any work environment in today's world. In the context of the OS, these include communication related skills that are applicable to most job roles. |