



## Qualification Pack



# Electrician Domestic Solutions

QP Code: PSS/Q6001

Version: 1.0

NSQF Level: 3

Power Sector Skill Council || Plot No. 4, Institutional Area, CBIP Building, Malcha Marg, Chanakyapuri  
New Delhi-110021



## Qualification Pack

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## Qualification Pack

### PSS/Q6001: Electrician Domestic Solutions

#### Brief Job Description

An Electrician does all types of wiring for households, is involved in troubleshooting and repair of electrical faults in existing wiring and other activities such as troubleshooting, replacing, repairing and maintaining common electrical equipments such as ceiling fans, tube light fittings, electric iron, geyser, motors, inverters, stabilizers water pumps etc.

#### Personal Attributes

The job requires the individual to have good physical strength, strong hands, ability to work for long working hours/nights, good eye visibility and ability to communicate to customer and resolve their problems. The individual should be ethical and well behaved.

#### Applicable National Occupational Standards (NOS)

##### Compulsory NOS:

- [1. PSS/N1336: Working effectively with others](#)
- [2. PSS/N2001: Use basic health and safety practices for power related work](#)
- [3. PSS/N6001: Types of House wiring and fault repair in house wiring](#)
- [4. PSS/N6002: Mains, distribution, controls circuits and protection in house wiring](#)
- [5. PSS/N6003: Maintenance & Repair of house hold gadgets](#)
- [6. PSS/N6005: Develop customer relationship skills](#)

#### Qualification Pack (QP) Parameters

<b>Sector</b>	Power
<b>Sub-Sector</b>	Distribution Downstream
<b>Occupation</b>	Household Wiring & Maintenance
<b>Country</b>	India
<b>NSQF Level</b>	3
<b>Aligned to NCO/ISCO/ISIC Code</b>	NCO-2015/7131.1



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<b>Minimum Educational Qualification &amp; Experience</b>	8th Class
<b>Minimum Level of Education for Training in School</b>	
<b>Pre-Requisite License or Training</b>	NA
<b>Minimum Job Entry Age</b>	18 Years
<b>Last Reviewed On</b>	25/07/2017
<b>Next Review Date</b>	31/03/2022
<b>NSQC Approval Date</b>	09/04/2018
<b>Version</b>	1.0
<b>Reference code on NQR</b>	2018/POW/PSSC/02188
<b>NQR Version</b>	1.0



## Qualification Pack

### PSS/N1336: Working effectively with others

#### Description

This unit covers basic etiquette and competencies that a candidate is required to possess and demonstrate in their behavior and interactions with others at the workplace. These cover areas such as communication etiquette, discipline, listening, handling conflict and grievances.

#### Scope

This unit/task covers the following:

- working with others

#### Elements and Performance Criteria

##### *working with others*

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

- PC1.** accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required
- PC2.** accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt
- PC3.** give information to others clearly, at a pace and in a manner that helps them to understand
- PC4.** display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible
- PC5.** consult with and assist others to maximize effectiveness and efficiency in carrying out tasks
- PC6.** display appropriate communication etiquette while working
- PC7.** display active listening skills while interacting with others at work
- PC8.** use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism
- PC9.** demonstrate responsible and disciplined behaviors at the workplace
- PC10.** escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict

#### Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions
- KU2.** reporting structure, inter-dependent functions, lines and procedures in the work area
- KU3.** relevant people and their responsibilities within the work area
- KU4.** escalation matrix and procedures for reporting work and employment related issues
- KU5.** various categories of people that one is required to communicate and co-ordinate with in the organization



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- KU6.** importance of effective communication in the workplace
- KU7.** importance of teamwork in organizational and individual success
- KU8.** various components of effective communication
- KU9.** key elements of active listening
- KU10.** value and importance of active listening and assertive communication
- KU11.** barriers to effective communication
- KU12.** importance of tone and pitch in effective communication
- KU13.** importance of avoiding casual expletives and unpleasant terms while communicating professional circles
- KU14.** how poor communication practices can disturb people, environment and cause problems for the employee, the employer and the customer
- KU15.** importance of ethics for professional success
- KU16.** importance of discipline for professional success
- KU17.** what constitutes disciplined behavior for a working professional
- KU18.** common reasons for interpersonal conflict
- KU19.** importance of developing effective working relationships for professional success
- KU20.** expressing and addressing grievances appropriately and effectively
- KU21.** importance and ways of managing interpersonal conflict effectively

## Generic Skills (GS)

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

- GS1.** note the information communicated by the officer incharge
- GS2.** note down observations (if any) related to the operation/maintenance
- GS3.** read and interpret the process required for different types of manuals
- GS4.** read and interpret the flowchart of all parts of an assembly
- GS5.** read manuals and documents to understand the product-details & how they can be used
- GS6.** discuss task lists, schedules and activities with the colleague/supervisor
- GS7.** effectively communicate with the team members
- GS8.** attentively listen and comprehend the information given by the colleague/supervisor/contractor
- GS9.** communicate clearly with the colleague on the issues faced during query/fault
- GS10.** follow colleague/contractor rule-based decision making process
- GS11.** take decisions with systematic course of actions and/or response
- GS12.** planning and organization of tasks to meet deadlines
- GS13.** build customer relationships and use customer centric approach
- GS14.** seek and comprehend operation related inputs for clarification find ways of modifying difficult operating stages to make it operation friendly
- GS15.** work systematically and logically to resolve the issues and identify causation and anticipate unexpected results. Quick approach and solution towards faults repairing



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- GS16.** critically evaluate operation parameters in relation to system normality develop a holistic and comprehensive profile of grid station on segregated discrete processes



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### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>working with others</i>	<b>30</b>	<b>70</b>	-	-
<b>PC1.</b> accurately receive information and instructions from the supervisor and fellow workers, getting clarification where required	3	7	-	-
<b>PC2.</b> accurately pass on information to authorized persons who require it and within agreed timescale and confirm its receipt	3	7	-	-
<b>PC3.</b> give information to others clearly, at a pace and in a manner that helps them to understand	3	7	-	-
<b>PC4.</b> display helpful behavior by assisting others in performing tasks in a positive manner, where required and possible	3	7	-	-
<b>PC5.</b> consult with and assist others to maximize effectiveness and efficiency in carrying out tasks	3	7	-	-
<b>PC6.</b> display appropriate communication etiquette while working	3	7	-	-
<b>PC7.</b> display active listening skills while interacting with others at work	3	7	-	-
<b>PC8.</b> use appropriate tone, pitch and language to convey politeness, assertiveness, care and professionalism	3	7	-	-
<b>PC9.</b> demonstrate responsible and disciplined behaviors at the workplace	3	7	-	-
<b>PC10.</b> escalate grievances and problems to appropriate authority as per procedure to resolve them and avoid conflict	3	7	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-





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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	PSS/N1336
<b>NOS Name</b>	Working effectively with others
<b>Sector</b>	Power
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	2
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	13/09/2021
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	20/07/2015



## Qualification Pack

# PSS/N2001: Use basic health and safety practices for power related work

## Description

This unit covers health, safety and security for power related work. This includes procedures and practices that candidates need to follow to help maintain a healthy, safe and secure work environment in a power plant, power station/substation or on the field while working on power equipment. It covers responsibilities towards self, others, assets and the environment

## Scope

This unit/task covers the following:

- health and safety
- fire safety
- emergencies, rescue and first-aid procedures

## Elements and Performance Criteria

### *Health and safety*

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

- PC1.** use protective clothing/equipment for specific tasks and work conditions
- PC2.** state the name and location of people responsible for health and safety in the workplace
- PC3.** state the names and location of documents that refer to health and safety in the workplace
- PC4.** identify job-site hazardous work and state possible causes of risk or accident in the workplace
- PC5.** follow electrical safe working procedures such as tag out/lock out and display ptw (permit to work),
- PC6.** follow warning signs (danger, out of service, etc.) while working with electrical systems
- PC7.** use standard safe working practices when working at heights, confined areas and trenches
- PC8.** test any electrical equipment and system using insulated testing devices before touching them
- PC9.** ensure positive isolation of electrical equipment & system as per given standards
- PC10.** recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed
- PC11.** carry out safe working practices while dealing with hazards to ensure the safety of self and others
- PC12.** state methods of accident prevention in the work environment of the job role
- PC13.** state location of general health and safety equipment in the workplace
- PC14.** inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder
- PC15.** lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa
- PC16.** inspect grid station and its equipment routinely for any signs of oil and water leakage
- PC17.** store flammable materials and machine lubricating oil safely and correctly



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- PC18.** check that the emission and pollution control devices are working properly in line with environmental policy standards
- PC19.** ensure proper working condition of battery and battery charger
- PC20.** maintain electrolyte level of each cell with distilled water
- PC21.** maintain proper ventilation in battery room
- PC22.** apply good housekeeping practices at all times
- PC23.** identify common hazard signs displayed in various areas
- PC24.** retrieve and/or point out documents that refer to health and safety in the workplace
- PC25.** inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly

### *Fire Safety*

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

- PC26.** use the various appropriate fire extinguishers on different types of fires correctly
- PC27.** distinguish between various types of fire
- PC28.** demonstrate rescue techniques applied during fire hazard
- PC29.** demonstrate good housekeeping in order to prevent fire hazards
- PC30.** demonstrate the correct use of a fire extinguisher

### *Emergencies, rescue and first-aid procedures*

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

- PC31.** demonstrate how to free a person from electrocution
- PC32.** administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.
- PC33.** demonstrate basic techniques of bandaging
- PC34.** respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments
- PC35.** perform and organize loss minimization or rescue activity during an accident in real or simulated environments
- PC36.** administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases
- PC37.** demonstrate the artificial respiration and the cpr process
- PC38.** participate in emergency procedures emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work
- PC39.** write accident/incident report or dictate a report to another person, and send report to person responsible
- PC40.** demonstrate correct method to move injured people and others during an emergency

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** legislation, standards, policies, and procedures followed in the company relevant to own employment and performance conditions
- KU2.** reporting structure, inter-dependent functions, lines and procedures in the work area



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- KU3.** relevant people and their responsibilities within the work area
- KU4.** escalation matrix and procedures for reporting work and employment related issues
- KU5.** meaning of hazards and risks
- KU6.** health and safety hazards commonly present in the work environment and related precautions
- KU7.** possible causes of risk, hazard or accident in the workplace and why risk and/or accidents are possible
- KU8.** possible causes of risk and accident
- KU9.** methods of accident prevention
- KU10.** safe working practices when working with tools and machines
- KU11.** safe working practices while working at various hazardous sites
- KU12.** where to find all the general health and safety equipment in the workplace
- KU13.** various dangers associated with the use of electrical equipment
- KU14.** positive isolation of electrical equipment and system
- KU15.** safe handling and disposal of hazardous power plant wastes
- KU16.** use of emission and pollution control devices and measures taken to control pollution
- KU17.** various safety procedures and equipment used to work at heights, trenches and confined places
- KU18.** safe working practices specific to working with electrical equipment & system e.g. lock out/tag out, ptw, etc.
- KU19.** preventative and remedial actions to be taken in the case of exposure to toxic materials
- KU20.** importance of using protective clothing/equipment and other insulated work gear while handling electrical system and equipment
- KU21.** precautionary activities taken to prevent fire accident
- KU22.** various causes of fire
- KU23.** techniques of using the different fire extinguishers
- KU24.** different methods of extinguishing fire
- KU25.** different materials used for extinguishing fire
- KU26.** emergency rescue techniques applied during a fire hazard
- KU27.** various types of safety signs and what they mean
- KU28.** appropriate basic first aid treatment relevant to the condition e.g. shock, electrical shock, bleeding, breaks to bones, minor burns, resuscitation, poisoning, eye injuries

## Generic Skills (GS)

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

- GS1.** note the information communicated by the officer incharge.
- GS2.** note down observations (if any) related to the operation/maintenance.
- GS3.** read and interpret the process required for different types of manuals for maintenance.
- GS4.** read and interpret the flowchart of all parts of an assembly.
- GS5.** read manuals and documents to understand the product-details & how they can be used.



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- GS6.** discuss task lists, schedules and activities with the colleague/supervisor.
- GS7.** effectively communicate with the team members.
- GS8.** attentively listen and comprehend the information given by the colleague/supervisor/contractor.
- GS9.** communicate clearly with the colleague on the issues faced during query/fault.
- GS10.** follow colleague/contractor rule-based decision making process.
- GS11.** take decisions with systematic course of actions and/or response.
- GS12.** planning and organization of tasks to meet deadlines.
- GS13.** build customer relationships and use customer centric approach.
- GS14.** seek and comprehend operation related inputs for clarification
- GS15.** find ways of modifying difficult operating stages to make it operation friendly
- GS16.** work systematically and logically to resolve the issues and identify causation and anticipate unexpected results.
- GS17.** quick approach and solution towards faults repairing.
- GS18.** critically evaluate operation parameters in relation to system normality
- GS19.** develop a holistic and comprehensive profile of grid station on segregated discrete process.



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Health and safety</i>	<b>11</b>	<b>46</b>	-	-
<b>PC1.</b> use protective clothing/equipment for specific tasks and work conditions	-	3	-	-
<b>PC2.</b> state the name and location of people responsible for health and safety in the workplace	-	2	-	-
<b>PC3.</b> state the names and location of documents that refer to health and safety in the workplace	-	2	-	-
<b>PC4.</b> identify job-site hazardous work and state possible causes of risk or accident in the workplace	1	1	-	-
<b>PC5.</b> follow electrical safe working procedures such as tag out/lock out and display ptw (permit to work),	1	2	-	-
<b>PC6.</b> follow warning signs (danger, out of service, etc.) while working with electrical systems	1	1	-	-
<b>PC7.</b> use standard safe working practices when working at heights, confined areas and trenches	1	2	-	-
<b>PC8.</b> test any electrical equipment and system using insulated testing devices before touching them	1	2	-	-
<b>PC9.</b> ensure positive isolation of electrical equipment & system as per given standards	1	2	-	-
<b>PC10.</b> recognize any abnormalities in electrical equipment or system installed alarm annunciation and/or noticing parameters from gauge/ indicator installed	1	2	-	-
<b>PC11.</b> carry out safe working practices while dealing with hazards to ensure the safety of self and others	1	1	-	-
<b>PC12.</b> state methods of accident prevention in the work environment of the job role	-	2	-	-
<b>PC13.</b> state location of general health and safety equipment in the workplace	-	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC14.</b> inspect for faults, set up and safely use of scaffolds and elevated platforms and ladder	-	2	-	-
<b>PC15.</b> lift, carry and transport heavy objects & tools safely using correct procedures from storage to workplace and vice versa	-	2	-	-
<b>PC16.</b> inspect grid station and its equipment routinely for any signs of oil and water leakage	-	2	-	-
<b>PC17.</b> store flammable materials and machine lubricating oil safely and correctly	-	2	-	-
<b>PC18.</b> check that the emission and pollution control devices are working properly in line with environmental policy standards	1	1	-	-
<b>PC19.</b> ensure proper working condition of battery and battery charger	1	1	-	-
<b>PC20.</b> maintain electrolyte level of each cell with distilled water	-	2	-	-
<b>PC21.</b> maintain proper ventilation in battery room	-	1	-	-
<b>PC22.</b> apply good housekeeping practices at all times	1	2	-	-
<b>PC23.</b> identify common hazard signs displayed in various areas	-	2	-	-
<b>PC24.</b> retrieve and/or point out documents that refer to health and safety in the workplace	-	2	-	-
<b>PC25.</b> inform relevant authorities about any abnormal situation/behavior of any equipment/system promptly	-	3	-	-
<i>Fire Safety</i>	<b>4</b>	<b>9</b>	-	-
<b>PC26.</b> use the various appropriate fire extinguishers on different types of fires correctly	1	1	-	-
<b>PC27.</b> distinguish between various types of fire	1	2	-	-
<b>PC28.</b> demonstrate rescue techniques applied during fire hazard	1	2	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC29.</b> demonstrate good housekeeping in order to prevent fire hazards	-	2	-	-
<b>PC30.</b> demonstrate the correct use of a fire extinguisher	1	2	-	-
<i>Emergencies, rescue and first-aid procedures</i>	<b>9</b>	<b>21</b>	-	-
<b>PC31.</b> demonstrate how to free a person from electrocution	1	2	-	-
<b>PC32.</b> administer appropriate first aid to victims where required e.g. in case of bleeding, burns, choking, electric shock, poisoning etc.	-	3	-	-
<b>PC33.</b> demonstrate basic techniques of bandaging	1	2	-	-
<b>PC34.</b> respond promptly and appropriately to an accident situation or medical emergency in real or simulated environments	1	2	-	-
<b>PC35.</b> perform and organize loss minimization or rescue activity during an accident in real or simulated environments	1	2	-	-
<b>PC36.</b> administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, before the arrival of emergency services in real or simulated cases	1	2	-	-
<b>PC37.</b> demonstrate the artificial respiration and the cpr process	1	2	-	-
<b>PC38.</b> participate in emergency procedures emergency procedures: raising alarm, safe/efficient, evacuation, correct means of escape, correct assembly point, roll call, correct return to work	1	2	-	-
<b>PC39.</b> write accident/incident report or dictate a report to another person, and send report to person responsible	1	2	-	-
<b>PC40.</b> demonstrate correct method to move injured people and others during an emergency	1	2	-	-
<b>NOS Total</b>	<b>24</b>	<b>76</b>	-	-





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### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	PSS/N2001
<b>NOS Name</b>	Use basic health and safety practices for power related work
<b>Sector</b>	Power
<b>Sub-Sector</b>	Generic
<b>Occupation</b>	Generic
<b>NSQF Level</b>	2
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	19/07/2016
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	20/07/2015



## Qualification Pack

# PSS/N6001: Types of House wiring and fault repair in house wiring

## Description

An Electrician must have good Knowledge of different types of wiring that is being carried out according to the budget of house owner. Skills to utilize the resources-best design, latest technology and longevity of house wiring in best possible way that is also cost effective keeping the protection of wiring, house hold gadgets and property.

## Scope

This unit/task covers the following:

- Develop various types of house wiring planning and drawings/layouts according to specific situation
- Wiring selection, size, ratings of cables, accessories optimization & forecasting
- Common electrical wiring faults, identification and repair of wiring of residential and
- Working safely

## Elements and Performance Criteria

### *Develop various types of house wiring planning and drawings/layouts according to specific situation*

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

- PC1.** develop circuit and wiring diagram and electrical signages, code specifications to plan wiring layouts, consumption points accurately, as may be required
- PC2.** use various types of tools, their functions and application for carrying out work
- PC3.** understand rating and current carrying capacity of wires, cables, fuse, switches, sockets, mcbs, elcbs and other electrical accessories
- PC4.** lay conduit pipe concealed and open wiring, batten, casing-capping and temporary cleat wiring

### *Wiring selection, size, ratings of cables, accessories optimization & forecasting*

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

- PC5.** implement system in the most economical way
- PC6.** ensure correct requirement of wires, cables, fuse, switches and other electrical accessories for optimal expenditure
- PC7.** ensure wiring and points selected in wiring are according to load growth in future
- PC8.** understand use of under-voltage protective devices, choice of setting of protective devices, labelling of protective devices, switches and terminals
- PC9.** understand insulation resistance of all live conductors to earth, insulation resistance between live conductors
- PC10.** implement methods of protection against electric shock
- PC11.** ensure selection of equipment appropriate to external influences, access to switchgear and equipment, presence of warning signs and danger notices
- PC12.** use updated technology products and take their ageing into consideration

### *Common electrical faults and repair*

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



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- PC13.** inspect fault locating points e.g. fuse blown, mcb, rcd trip or short circuit location in wiring circuit
- PC14.** ensure open circuit due to overheated switches, socket and wires in control board due to loose contact and overload
- PC15.** check polarity to ensure all switches are connected in phase conductors
- PC16.** check equal distribution of load on three phase wiring in large residential and commercial units
- PC17.** check the color coding, connection and identification of conductors, cables and wires
- PC18.** check routing of cables, proper selection of conductors, wires and connectors and connection of single pole devices

### *Working safely*

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

- PC19.** work safely at all times, complying with health and safety legislation, regulation and other relevant guidelines
- PC20.** adhere to procedures for safety to wear ppe
- PC21.** ensure that all tools & tackles, fittings, accessories etc. are in safe and usable condition
- PC22.** ensure work area is clean and safe from hazards before and after the job is completed

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** job responsibility/ duties and standard operating procedures, if any
- KU2.** escalation matrix and procedures for reporting work and employment related issues
- KU3.** basic elements of electricity, voltage, current, resistance, power, energy, and how electricity flows
- KU4.** basic knowledge of electrical circuits drawings and layouts
- KU5.** wires and cables, their current carrying capacity and their usage
- KU6.** standard procedures followed in house wiring
- KU7.** ratings as per technical terminology of control switches, mcb, elcb, rcd electrical accessories and appliances used in house wiring, their purpose and functioning
- KU8.** how to plan the work correctly using various safety measures. work planning : location, material required and sequence of tasks
- KU9.** all types of conceal, open wiring. size of conduit pipe, batten and casing-capping required for each circuit
- KU10.** depth of groove, channel size, clamping, boxes, hole pass on walls, pre lanter fittings and hooks on ceiling etc. knowledge of inserting steel wire to drag the bunch of wires through conduit pipe
- KU11.** tools and tackles used for house wiring e.g. tools bag containing combination plier, cutter, screw drivers, hammer, chisel, drill machine, wrench set, hacksaw etc. importance of tools and equipment to be kept in a safe and usable condition
- KU12.** specific health and safety precautions which must be taken when carrying out indoor and outdoor wiring, associated hazards, working at heights and ppe must be worn
- KU13.** basics of power regulations and safety requirements as per cea guidelines



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### Generic Skills (GS)

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

- GS1.** note the information communicated by the customer
- GS2.** route marking on walls
- GS3.** note down observations (if any) related to the operation
- GS4.** read and interpret the process required for different types of drawings i.e. single line diagram, schematic diagram, layout of building/house
- GS5.** read and interpret the flowchart of all parts of house wiring
- GS6.** read and interpret the process required for different types of wiring ensures: a. conduit wiring b. cts clip wiring or batten wiring c. casing and capping d. cleat wiring
- GS7.** read manuals and documents to understand the product-details & how they can be used
- GS8.** discuss task lists, schedules and activities with the customer/supervisor
- GS9.** effectively communicate with the team members
- GS10.** attentively listen and comprehend the information given by the customer/supervisor/contractor
- GS11.** communicate clearly with the customer on the issues faced during query/fault
- GS12.** follow customer/contractor rule-based decision making process
- GS13.** take decision with systematic course of actions and/or response
- GS14.** planning and organization of tasks to meet deadlines
- GS15.** build customer relationships and use customer centric approach
- GS16.** seek and comprehend operation related inputs for clarification
- GS17.** find ways of modifying difficult operating stages to make them operation friendly
- GS18.** plan layout of wiring to achieve the shortest and most reliable path
- GS19.** work systematically and logically to resolve the issues and identify causation and anticipate unexpected results
- GS20.** critically evaluate operation parameters in relation to product features intended
- GS21.** develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Develop various types of house wiring planning and drawings/layouts according to specific situation</i>	9	9	-	-
<b>PC1.</b> develop circuit and wiring diagram and electrical signages, code specifications to plan wiring layouts, consumption points accurately, as may be required	2	1	-	-
<b>PC2.</b> use various types of tools, their functions and application for carrying out work	4	2	-	-
<b>PC3.</b> understand rating and current carrying capacity of wires, cables, fuse, switches, sockets, mcbs, elcbs and other electrical accessories	2	3	-	-
<b>PC4.</b> lay conduit pipe concealed and open wiring, batten,casing-capping and temporary cleat wiring	1	3	-	-
<i>Wiring selection , size, ratings of cables, accessories optimization &amp; forecasting</i>	<b>11</b>	<b>29</b>	-	-
<b>PC5.</b> implement system in the most economical way	2	3	-	-
<b>PC6.</b> ensure correct requirement of wires, cables, fuse, switches and other electrical accessories for optimal expenditure	3	3	-	-
<b>PC7.</b> ensure wiring and points selected in wiring are according to load growth in future	2	3	-	-
<b>PC8.</b> understand use of under-voltage protective devices, choice of setting of protective devices, labelling of protective devices, switches and terminals	-	6	-	-
<b>PC9.</b> understand insulation resistance of all live conductors to earth, insulation resistance between live conductors	1	3	-	-
<b>PC10.</b> implement methods of protection against electric shock	-	5	-	-



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> ensure selection of equipment appropriate to external influences, access to switchgear and equipment, presence of warning signs and danger notices	2	3	-	-
<b>PC12.</b> use updated technology products and take their ageing into consideration	1	3	-	-
<i>Common electrical faults and repair</i>	<b>8</b>	<b>18</b>	-	-
<b>PC13.</b> inspect fault locating points e.g. fuse blown, mcb, rcd trip or short circuit location in wiring circuit	1	3	-	-
<b>PC14.</b> ensure open circuit due to overheated switches, socket and wires in control board due to loose contact and overload	1	3	-	-
<b>PC15.</b> check polarity to ensure all switches are connected in phase conductors	-	5	-	-
<b>PC16.</b> check equal distribution of load on three phase wiring in large residential and commercial units	2	3	-	-
<b>PC17.</b> check the color coding, connection and identification of conductors, cables and wires	3	2	-	-
<b>PC18.</b> check routing of cables, proper selection of conductors, wires and connectors and connection of single pole devices	1	2	-	-
<i>Working safely</i>	<b>2</b>	<b>14</b>	-	-
<b>PC19.</b> work safely at all times, complying with health and safety legislation, regulation and other relevant guidelines	-	3	-	-
<b>PC20.</b> adhere to procedures for safety to wear ppe	1	4	-	-
<b>PC21.</b> ensure that all tools & tackles, fittings, accessories etc. are in safe and usable condition	-	4	-	-
<b>PC22.</b> ensure work area is clean and safe from hazards before and after the job is completed	1	3	-	-
<b>NOS Total</b>	<b>30</b>	<b>70</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	PSS/N6001
<b>NOS Name</b>	Types of House wiring and fault repair in house wiring
<b>Sector</b>	Power
<b>Sub-Sector</b>	Distribution Downstream
<b>Occupation</b>	Household Wiring & Maintenance
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	25/07/2017
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	04/01/2018



## Qualification Pack

# PSS/N6002: Mains, distribution, controls circuits and protection in house wiring

## Description

The job holder ensures proper connection of mains, distribution board, junction box, switches, lamp holders, fittings, plugs, sockets and protective devices like fuses, MCB, ELCB, RCD etc. and earthing in the best possible manner in domestic houses

## Scope

This unit/task covers the following:

- Ensure of mains, distribution board and protection devices
- Ensure of new power points, extension boards
- Ensure of protective devices
- Types of earthing, procedure to lay and its connection in house wiring. Ensure of electrical appliances
- Types and use of test instruments in house wiring

## Elements and Performance Criteria

### *Ensure connection of mains, distribution board and protection devices*

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

- PC1.** understand standard location of main board ensure for utility's service line connection
- PC2.** understand layout of main switch, circuit breakers required at main board
- PC3.** ensure of controlling and protection devices for different circuits being used for lighting and power loads at each floor or portion

### *Ensure of new power points, extension boards.*

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

- PC4.** check types of conduit, batten, underground and open wiring
- PC5.** locate and mark the position of conduit pipe ensures, connections into the structures with proper equipments like measuring tape, hammer, saw, drill machines etc.
- PC6.** cut openings in structures to accommodate conduit pipes or pipe fittings, using hand or power tools
- PC7.** read plan ensure around obstructions like electrical wiring, gas fittings etc.
- PC8.** laying of conduit pipe with clamps
- PC9.** install brackets and hangers to support electrical equipment
- PC10.** install, replace and repair lighting fixtures and electrical control and distribution equipment, such as switches, relays and circuit breaker panels
- PC11.** lay & pull wire through conduits and through holes in walls and floors
- PC12.** join and connect wire to fixtures and components to form circuits
- PC13.** prepare extended line for additional points with bearing capacity of existing system or augment/replacement of existing lines to with hold the additional load





## Qualification Pack

### *Ensure of protective devices*

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

- PC14.** install the protective device i.e. fuse, mcb, rccb, mccbs ratings as per the load
- PC15.** ensure proper working and functioning of all protective devices that are necessary to save lives of human, livestock, animals
- PC16.** ensure fuse, switch or circuit breaker should not be placed in an earthed neutral conductor and are wired only in the phase conductor only
- PC17.** ensure all the connections are made properly, tightened and color coding
- PC18.** ensure that the correct type, size and current-carrying capacity of cables is chosen to bear the load
- PC19.** ensure that the all accessible points which may be switched on/off must be easily approached by the users

### *Types of earthing, procedure to lay and its connection in house wiring. Ensure of electrical appliances*

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

- PC20.** understand types of earthing plate and pipe earthing layout location
- PC21.** understand importance of earth connection with household gadgets and equipment
- PC22.** understand procedure of earth connection with appliance, sockets main board and distribution board
- PC23.** use of devices available in market such as trimmers, impulse relay, programmable switch, twilight switch, movement detector
- PC24.** ensure of assembling of various type, design and capacity fans, tube lights, led lights, bulbs, lamps, doorbells, switches, geysers, inverters, exhaust fan, safety alarms, decorative lights and chandliers
- PC25.** ensure of various size and capacity water pump motors according to the load with their control circuit of water level in tank

### *Types and use of test instruments in house wiring*

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

- PC26.** make connections and operate instruments to check the healthiness of house wiring in terms of leakage insulation resistance
- PC27.** operate instruments to check the continuity, open circuit, short circuit and load flow
- PC28.** operate instruments to check the earth resistance

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** job responsibilities/duties and standard operating procedures
- KU2.** escalation matrix and procedures for reporting work and employee related issues
- KU3.** electricity, power, energy mains and distribution circuits
- KU4.** product, their ratings, current carrying capacity, color coding, loading capacity and their connection in case of extension/augmentation in existing system
- KU5.** standard procedure to lay pipe and plate earthing
- KU6.** laying of earth wire conductor in wiring and their connections



## Qualification Pack

- KU7.** laying staircase, corridor, electric alarm, inverter and other related circuits using push button, two way, door and limit switches
- KU8.** laying communication cables like network, tv, radio, telephone with their accessories fittings and ensure quality of connections
- KU9.** power equipment tools and ability to operate proficiently
- KU10.** test instruments like test lamp, multimeter, neon tester, clamp on meter, insulation and earth megger and ensure safe usage
- KU11.** tools and tackles used for house wiring. importance of tools and equipment to be kept in a safe and usable condition
- KU12.** specific health and safety precautions which must be taken when carrying out indoor and outdoor wiring, associated hazards, working at height and ppes must be worn

## Generic Skills (GS)

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

- GS1.** note the information communicated by the customer & note down observations (if any) related to the operation
- GS2.** read and interpret the process required for different types of wiring installation
- GS3.** read and interpret the flowchart of all parts of an assembly
- GS4.** read manuals and documents to understand the product-details & how they can be used
- GS5.** discuss task lists, schedules and activities with the customer/supervisor
- GS6.** effectively communicate with the team members
- GS7.** attentively listen and comprehend the information given by the customer/supervisor/contractor
- GS8.** communicate clearly with the customer on the issues faced during query/fault
- GS9.** follow customer/contractor rule-based decision making process
- GS10.** take decision with systematic course of actions and/or response
- GS11.** planning and organization of tasks to meet deadlines
- GS12.** build customer relationships and use customer centric approach
- GS13.** seek and comprehend operation related inputs for clarification
- GS14.** find ways of modifying difficult operating stages to make it operation friendly
- GS15.** plan layout of wiring, to become shortest and reliable path
- GS16.** work systematically and logically to resolve the issues and identify causation and anticipate unexpected results
- GS17.** critically evaluate operation parameters in relation to product features intended
- GS18.** develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Ensure connection of mains, distribution board and protection devices</i>	<b>7</b>	<b>8</b>	-	-
<b>PC1.</b> understand standard location of main board ensure for utilities service line connection	3	3	-	-
<b>PC2.</b> understand layout of main switch, circuit breakers require at main board	2	3	-	-
<b>PC3.</b> ensure of controlling and protection devices for different circuits being used for lighting and power loads at each floor or portion	2	2	-	-
<i>Ensure of new power points, extension boards.</i>	<b>10</b>	<b>29</b>	-	-
<b>PC4.</b> check types of conduit, batten, underground and open wiring	1	3	-	-
<b>PC5.</b> locate and mark the position of conduit pipe ensures, connections into the structures with proper equipments like measuring tape, hammer, saw, drill machines etc.	1	3	-	-
<b>PC6.</b> cut openings in structures to accommodate conduit pipes or pipe fittings, using hand or power tools	-	4	-	-
<b>PC7.</b> read plan ensure around obstructions like electrical wiring, gas fittings etc.	2	2	-	-
<b>PC8.</b> laying of conduit pipe with clamps	-	1	-	-
<b>PC9.</b> install brackets and hangers to support electrical equipment	-	1	-	-
<b>PC10.</b> install, replace and repair lighting fixtures and electrical control and distribution equipment, such as switches, relays and circuit breaker panels	2	4	-	-
<b>PC11.</b> lay & pull wire through conduits and through holes in walls and floors	-	4	-	-
<b>PC12.</b> join and connect wire to fixtures and components to form circuits	2	4	-	-



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC13.</b> prepare extended line for additional points with bearing capacity of existing system or augment/replacement of existing lines to with hold the additional load	2	3	-	-
<i>Ensure of protective devices</i>	<b>7</b>	<b>15</b>	-	-
<b>PC14.</b> install the protective device i.e. fuse, mcb, rccb, mccbs ratings as per the load	2	4	-	-
<b>PC15.</b> ensure proper working and functioning of all protective devices that are necessary to save lives of human, livestock, animals	1	2	-	-
<b>PC16.</b> ensure fuse, switch or circuit breaker should not be placed in an earthed neutral conductor and are wired only in the phase conductor only	-	3	-	-
<b>PC17.</b> ensure all the connections are made properly, tightened and color coding	1	3	-	-
<b>PC18.</b> ensure that the correct type, size and current-carrying capacity of cables is chosen to bear the load	1	2	-	-
<b>PC19.</b> ensure that the all accessible points which may be switched on/off must be easily approached by the users	2	1	-	-
<i>Types of earthing, procedure to lay and its connection in house wiring.Ensure of electrical appliances</i>	<b>7</b>	<b>11</b>	-	-
<b>PC20.</b> understand types of earthing plate and pipe earthing layout location	2	2	-	-
<b>PC21.</b> understand importance of earth connection with household gadgets and equipment	2	1	-	-
<b>PC22.</b> understand procedure of earth connection with appliance, sockets main board and distribution board	1	2	-	-
<b>PC23.</b> use of devices available in market such as trimmers, impulse relay, programmable switch, twilight switch, movement detector	-	2	-	-



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC24.</b> ensure of assembling of various type, design and capacity fans, tube lights, led lights, bulbs, lamps, doorbells, switches, geysers, inverters, exhaust fan, safety alarms, decorative lights and chandliers	1	2	-	-
<b>PC25.</b> ensure of various size and capacity water pump motors according to the load with their control circuit of water level in tank	1	2	-	-
<i>Types and use of test instruments in house wiring</i>	-	<b>6</b>	-	-
<b>PC26.</b> make connections and operate instruments to check the healthiness of house wiring in terms of leakage insulation resistance	-	2	-	-
<b>PC27.</b> operate instruments to check the continuity, open circuit, short circuit and load flow	-	2	-	-
<b>PC28.</b> operate instruments to check the earth resistance	-	2	-	-
<b>NOS Total</b>	<b>31</b>	<b>69</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	PSS/N6002
<b>NOS Name</b>	Mains, distribution, controls circuits and protection in house wiring
<b>Sector</b>	Power
<b>Sub-Sector</b>	Distribution Downstream
<b>Occupation</b>	Household Wiring & Maintenance
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	25/07/2017
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	04/01/2018



## Qualification Pack

# PSS/N6003: Maintenance & Repair of house hold gadgets

## Description

Ensures proper maintenance for the systems healthy, long and safe life.

## Scope

This unit/task covers the following:

- Inspection & Testing
- Types of single and three phase motors
- Types of heating element, thermal relays and insulation
- Repair and maintenance of household electrical appliances
- Repair and maintenance of roof top solar panel

## Elements and Performance Criteria

### *Inspection & Testing*

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

- PC1.** read and interpret drawings, circuit diagrams and electrical code specifications of the electrical equipment, gadgets
- PC2.** read, interpret and understand the capacity in kw, load in amperes and power consumption in kwh for each appliance
- PC3.** check connection of equipment, checking for status of tripping device
- PC4.** ensure presence of appropriate devices for isolating and switching

### *Types of Single phase motors*

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

- PC5.** understand operating principle of single phase motor, use of condenser
- PC6.** understand how rotating field is developed in single phase and three phase motor
- PC7.** understand the significance of number of poles significance in motor winding for rpm, speed and direction change
- PC8.** measure insulation resistance of motor winding with live conductors to earth and insulation resistance between live conductors
- PC9.** understand various parts of motors, pumps and their function like ball bearings, cooling fans, fins and bushes
- PC10.** understand various types of winding wires, their gauge and insulating materials for motor winding

### *Types of heating element, thermal relays and insulation*

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

- PC11.** understand materials used to make various types of heating elements like nicrome, kanthal, eureka etc., various shape, size and capacity of heating elements according to applications and usages
- PC12.** understand types of thermal insulations used in electrical gadgets like mica, asbestos, ceramics, glass wool etc.





## Qualification Pack

**PC13.** understand timers (motorized, mechanical), thermal relays, bimetallic strips

*Repair and maintenance of small electrical appliances.*

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

**PC14.** ensure preventive maintenance, regular cleaning, oiling, greasing of house hold gadgets like fans, desert cooler, water pump motors etc.

**PC15.** replace damaged switches, MCB, fan- capacitor, regulator, lighting points i.e. holder, choke, starters, water coolers and their pump & motor

**PC16.** ensure regular maintenance of electrical equipments like- iron, toaster, induction-plate & cooker

**PC17.** ensure regular maintenance of doorbells, fl tube starters & chokes

**PC18.** preventative maintenance of batteries

**PC19.** solder winding wires, cables and their joints in electrical gadgets

*Repair and maintenance of roof top solar System*

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

**PC20.** verify system grounding and measure insulation resistance

**PC21.** clean solar panels for removal of dust, bird droppings, pollen, leaves, branches etc. as per maintenance schedule

**PC22.** ensure all electrical connections as per specification, measure and record dc voltages and currents and identify the faults in the system

**PC23.** check for working condition of fuses, circuit breakers and all cables for loose connections

**PC24.** take adequate precautionary measures while handling electrical system adhering to relevant health and safety standards

**PC25.** understand that if reason of error is not clear, do not try to fix anything and call OEM repair and maintenance team

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

**KU1.** job responsibilities/duties and standard operating procedures

**KU2.** escalation matrix and procedures for reporting work and employment related issues

**KU3.** basic electricity voltage, current, resistance, power, series and parallel circuits

**KU4.** products, their ratings as per name plate signs and technical terminology

**KU5.** types of heating elements used in domestic appliances, strips, round and flat conductors (nicrome, kental, eureka) open, in tube, engulfed with thermal insulations like mica, asbestos, ceramics etc.

**KU6.** single phase motor, their operating principle, armature and rotor design, significance of number of poles in motor winding, connection of starting and running windings, rpm calculation, cooling system

**KU7.** gun metal bushing, ball bearing size and where to apply machine oil, grease at rotating parts of domestic appliances

**KU8.** how to operate measuring instruments proficiently i.e. ohm meter, ammeter, voltmeter, clamp on meter, multi meter





## Qualification Pack

- KU9.** functioning and use of house hold gadgets, their tripping circuits, thermal bimetalic relays, timers (mechanical, motorized and thermal). their current carrying capacity, size of leads, size of conductor
- KU10.** inverter, their circuit connections, how power backup develop in case of supply failure, trickle charging, checking of battery status and their schedule checkups
- KU11.** specific health and safety precautions which must be taken when carrying out repair and maintenance, associated hazards, working at heights and ppes must be worn
- KU12.** service warranty of electrical gadgets, opening of companys seal and authorization

## Generic Skills (GS)

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

- GS1.** note the information communicated by the customer
- GS2.** note down observations (if any) related to the operation/maintenance
- GS3.** read and interpret the process required for different types of manuals for maintenance
- GS4.** read and interpret the flowchart of all parts of an assembly
- GS5.** read manuals and documents to understand the product-details & how they can be used
- GS6.** discuss task lists, schedules and activities with the customer/supervisor
- GS7.** effectively communicate with the team members
- GS8.** attentively listen and comprehend the information given by the customer/supervisor/contractor
- GS9.** communicate clearly with the customer on the issues faced during query/fault
- GS10.** follow customer/contractor rule-based decision making process
- GS11.** take decision with systematic course of actions and/or response
- GS12.** planning and organization of tasks to meet deadlines
- GS13.** build customer relationships and use customer centric approach
- GS14.** seek and comprehend operation related inputs for clarification
- GS15.** find ways of modifying difficult operating stages to make it operation friendly
- GS16.** works systematically and logically to resolve the issues and identify causation and anticipate unexpected results
- GS17.** quick approach and solution towards faults repairing
- GS18.** critically evaluate operation parameters in relation to product features intended
- GS19.** develop holistic and comprehensive profile of products based on segregated discrete process stages of blank forming processes



## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Inspection &amp; Testing</i>	<b>10</b>	<b>8</b>	-	-
<b>PC1.</b> read and interpret drawings, circuit diagrams and electrical code specifications of the electrical equipment, gadgets	3	4	-	-
<b>PC2.</b> read, interpret and understand the capacity in kw, load in amperes and power consumption in kwh for each appliance	3	1	-	-
<b>PC3.</b> check connection of equipment, checking for status of tripping device	2	2	-	-
<b>PC4.</b> ensure presence of appropriate devices for isolating and switching	2	1	-	-
<i>Types of Single phase motors</i>	<b>13</b>	<b>5</b>	-	-
<b>PC5.</b> understand operating principle of single phase motor, use of condenser	4	1	-	-
<b>PC6.</b> understand how rotating field is developed in single phase and three phase motor	2	-	-	-
<b>PC7.</b> understand the significance of number of poles significance in motor winding for rpm, speed and direction change	2	1	-	-
<b>PC8.</b> measure insulation resistance of motor winding with live conductors to earth and insulation resistance between live conductors	1	2	-	-
<b>PC9.</b> understand various parts of motors, pumps and their function like ball bearings, cooling fans, fins and bushes	2	1	-	-
<b>PC10.</b> understand various types of winding wires, their gauge and insulating materials for motor winding	2	-	-	-
<i>Types of heating element, thermal relays and insulation</i>	<b>2</b>	<b>11</b>	-	-



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> understand materials used to make various types of heating elements like nicrome, kanthal, eureka etc., various shape, size and capacity of heating elements according to applications and usages	-	4	-	-
<b>PC12.</b> understand types of thermal insulations used in electrical gadgets like mica, asbestos, ceramics, glass wool etc.	-	4	-	-
<b>PC13.</b> understand timers (motorized, mechanical), thermal relays, bimetallic strips	2	3	-	-
<i>Repair and maintenance of small electrical appliances.</i>	<b>9</b>	<b>27</b>	-	-
<b>PC14.</b> ensure preventive maintenance, regular cleaning, oiling, greasing of house hold gadgets like fans, desert cooler, water pump motors etc.	-	4	-	-
<b>PC15.</b> replace damaged switches, MCB, fan-capacitor, regulator, lighting points i.e. holder, choke, starters, water coolers and their pump & motor	2	4	-	-
<b>PC16.</b> ensure regular maintenance of electrical equipments like- iron, toaster, induction-plate & cooker	2	6	-	-
<b>PC17.</b> ensure regular maintenance of doorbells, fl tube starters & chokes	2	6	-	-
<b>PC18.</b> preventative maintenance of batteries	2	3	-	-
<b>PC19.</b> solder winding wires, cables and their joints in electrical gadgets	1	4	-	-
<i>Repair and maintenance of roof top solar System</i>	<b>4</b>	<b>11</b>	-	-
<b>PC20.</b> verify system grounding and measure insulation resistance	-	2	-	-
<b>PC21.</b> clean solar panels for removal of dust, bird droppings, pollen, leaves, branches etc. as per maintenance schedule	-	2	-	-



## Qualification Pack

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC22.</b> ensure all electrical connections as per specification, measure and record dc voltages and currents and identify the faults in the system	1	1	-	-
<b>PC23.</b> check for working condition of fuses, circuit breakers and all cables for loose connections	1	1	-	-
<b>PC24.</b> take adequate precautionary measures while handling electrical system adhering to relevant health and safety standards	-	2	-	-
<b>PC25.</b> understand that if reason of error is not clear, do not try to fix anything and call OEM repair and maintenance team	2	3	-	-
<b>NOS Total</b>	<b>38</b>	<b>62</b>	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	PSS/N6003
<b>NOS Name</b>	Maintenance & Repair of house hold gadgets
<b>Sector</b>	Power
<b>Sub-Sector</b>	Distribution Downstream
<b>Occupation</b>	Household Wiring & Maintenance
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	25/07/2017
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	09/04/2018



## Qualification Pack

### PSS/N6005: Develop customer relationship skills

#### Description

Make a bond with customer through effective communication and exchange information. Providing all updates to customers regarding the new services, policies, initiatives of the DISCOM/Utility.

#### Scope

This unit/task covers the following

#### Elements and Performance Criteria

##### *Establish rapport with customer*

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

- PC1.** ensure effective verbal communications are polite, clear and completed in a timely manner
- PC2.** ensure promote greeting or acknowledgement and offer of assistance are provided to customer
- PC3.** ensure consumer is asked if there is anything else they can be helped with
- PC4.** ensure tone of voice and place are monitored to ensure that trust is built

##### *Gather information to assess Consumers needs and seek his/her consent to your proposal*

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

- PC5.** ensure effective and efficient line of questioning is used
- PC6.** ensure consumer needs are correctly identified in a timely manner
- PC7.** ensure techniques used are personalized to meet the needs of customers with different cultural backgrounds and demographics, including age and disability status
- PC8.** submit a crisp proposal answering needs of the consumer with financial estimate component, explain full details and seek his/her consent to begin the job

##### *Explain new products, options to customers*

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

- PC9.** understand new initiative taken up by company in reference to energy conservation products by providing led lamps, 5 star rating electric gadgets
- PC10.** ensure power generation equipment like genset, solar panels etc. and other non conventional energy source

##### *Respond to Consumers comments and questions*

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

- PC11.** ensure appropriate explanation/ solution/ option are determined for the consumers situation
- PC12.** ensure customer communications are paraphrased to confirm understanding
- PC13.** ensure consumer needs are recognized and acknowledged
- PC14.** ensure issues are escalated or advice is solicited from appropriate departmental staff when necessary to meet consumer needs

##### *Resolve consumers problems to his/her full satisfaction*

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



## Qualification Pack

- PC15.** show patience : if you deal with consumer on a daily basis, be sure to stay patient when you meet them and they are stumped and frustrated
- PC16.** show attentiveness : the ability to really listen to consumer is so crucial for providing great service for a number of reasons
- PC17.** show clear communication skills : when it comes to important points that you need to relay clearly to consumers, keep it simple and leave nothing to doubt
- PC18.** show time management skills : dont waste time trying to go above and beyond for a consumer in an service area where you will just end of wasting both of your time
- PC19.** show ability to read consumer : look and listen for subtle clues about their current mood, patience level, personality etc. and youll go for in keeping your coustomer interaction positive
- PC20.** maintain a calming presence
- PC21.** show ability to use positive language
- PC22.** show closing ability : being able to close with a consumer means being able to end the service with confirmed satisfaction (or as close to it as you can achieve) and with the consumer feeling that everything has been worked on

## Knowledge and Understanding (KU)

The individual on the job needs to know and understand:

- KU1.** job responsibilities/duties and standard operating procedures, if any
- KU2.** processes like key contact points/customer service details for query resolution related to electrical product or wiring
- KU3.** escalation matrix and procedures for reporting employment related issues
- KU4.** power outage
- KU5.** basic electricity voltage, current, resistance, power, series and parallel circuits
- KU6.** products, their ratings as per name plate signs and technical terminology
- KU7.** types of product available with different companies

## Generic Skills (GS)

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

- GS1.** note the query, issues, specifications and fault observation if required
- GS2.** note down observations (if any) communicated by consumer and related electricity rules
- GS3.** ie act and operation
- GS4.** read and interpret the handling process required for various types of consumer complaints
- GS5.** read and interpret the process required for all consumer related issues
- GS6.** read oem specification on products
- GS7.** discuss task lists, schedules and activities with team member, if any
- GS8.** effectively communicate with the team members
- GS9.** attentively listen and comprehend the information given by the customer



## Qualification Pack

- GS10.** communicate clearly with the customer on the issues faced during query/fault
- GS11.** apply logical decision making process
- GS12.** take decision with systematic course of actions and/or response
- GS13.** planning and organization of tasks to meet deadlines
- GS14.** build consumer relationships and use consumer centric approach
- GS15.** seek and comprehend operation related inputs for clarification
- GS16.** find ways of modifying difficult operating stages to make it operation friendly
- GS17.** apply domain information to set and define operation parameters that ensures economy and quality to supply





## Qualification Pack

### Assessment Criteria

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Establish rapport with customer</i>	<b>4</b>	<b>16</b>	-	-
<b>PC1.</b> ensure effective verbal communications are polite, clear and completed in a timely manner	2	4	-	-
<b>PC2.</b> ensure promote greeting or acknowledgement and offer of assistance are provided to customer	-	4	-	-
<b>PC3.</b> ensure consumer is asked if there is anything else they can be helped with	-	4	-	-
<b>PC4.</b> ensure tone of voice and place are monitored to ensure that trust is built	2	4	-	-
<i>Gather information to assess Consumers needs and seek his/her consent to your proposal</i>	<b>8</b>	<b>9</b>	-	-
<b>PC5.</b> ensure effective and efficient line of questioning is used	4	2	-	-
<b>PC6.</b> ensure consumer needs are correctly identified in a timely manner	2	2	-	-
<b>PC7.</b> ensure techniques used are personalized to meet the needs of customers with different cultural backgrounds and demographics, including age and disability status	2	2	-	-
<b>PC8.</b> submit a crisp proposal answering needs of the consumer with financial estimate component, explain full details and seek his/her consent to begin the job	-	3	-	-
<i>Explain new products, options to customers</i>	<b>1</b>	<b>7</b>	-	-
<b>PC9.</b> understand new initiative taken up by company in reference to energy conservation products by providing led lamps, 5 star rating electric gadgets	1	3	-	-
<b>PC10.</b> ensure power generation equipment like genset, solar panels etc. and other non conventional energy source	-	4	-	-
<i>Respond to Consumers comments and questions</i>	<b>5</b>	<b>11</b>	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<b>PC11.</b> ensure appropriate explanation/ solution/ option are determined for the consumers situation	-	4	-	-
<b>PC12.</b> ensure customer communications are paraphrased to confirm understanding	3	2	-	-
<b>PC13.</b> ensure consumer needs are recognized and acknowledged	-	4	-	-
<b>PC14.</b> ensure issues are escalated or advice is solicited from appropriate departmental staff when necessary to meet consumer needs	2	1	-	-
<i>Resolve consumers problems to his/her full satisfaction</i>	<b>12</b>	<b>27</b>	-	-
<b>PC15.</b> show patience : if you deal with consumer on a daily basis, be sure to stay patient when you meet them and they are stumped and frustrated	1	4	-	-
<b>PC16.</b> show attentiveness : the ability to really listen to consumer is so crucial for providing great service for a number of reasons	2	3	-	-
<b>PC17.</b> show clear communication skills : when it comes to important points that you need to relay clearly to consumers, keep it simple and leave nothing to doubt	2	3	-	-
<b>PC18.</b> show time management skills : dont waste time trying to go above and beyond for a consumer in an service area where you will just end of wasting both of your time	2	3	-	-
<b>PC19.</b> show ability to read consumer : look and listen for subtle clues about their current mood, patience level, personality etc. and youll go for in keeping your customer interaction positive	2	3	-	-
<b>PC20.</b> maintain a calming presence	2	3	-	-
<b>PC21.</b> show ability to use positive language	-	4	-	-
<b>PC22.</b> show closing ability : being able to close with a consumer means being able to end the service with confirmed satisfaction (or as close to it as you can achieve) and with the consumer feeling that everything has been worked on	1	4	-	-



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Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
NOS Total	30	70	-	-



## Qualification Pack

### National Occupational Standards (NOS) Parameters

<b>NOS Code</b>	PSS/N6005
<b>NOS Name</b>	Develop customer relationship skills
<b>Sector</b>	Power
<b>Sub-Sector</b>	Distribution Downstream
<b>Occupation</b>	Household Wiring & Maintenance
<b>NSQF Level</b>	3
<b>Credits</b>	TBD
<b>Version</b>	1.0
<b>Last Reviewed Date</b>	25/07/2017
<b>Next Review Date</b>	31/03/2022
<b>NSQC Clearance Date</b>	09/04/2018

### Assessment Guidelines and Assessment Weightage

#### Assessment Guidelines

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ 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 Element/ PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6. To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7. In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.



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**Minimum Aggregate Passing % at QP Level : 50**

(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
PSS/N1336.Working effectively with others	30	70	-	-	100	5
PSS/N2001.Use basic health and safety practices for power related work	24	76	-	-	100	15
PSS/N6001.Types of House wiring and fault repair in house wiring	30	70	-	-	100	20
PSS/N6002.Mains, distribution, controls circuits and protection in house wiring	31	69	-	-	100	20
PSS/N6003.Maintenance & Repair of house hold gadgets	38	62	-	-	100	30
PSS/N6005.Develop customer relationship skills	30	70	-	-	100	10
<b>Total</b>	<b>183</b>	<b>417</b>	<b>-</b>	<b>-</b>	<b>600</b>	<b>100</b>



## Qualification Pack

### Acronyms

<b>NOS</b>	National Occupational Standard(s)
<b>NSQF</b>	National Skills Qualifications Framework
<b>QP</b>	Qualifications Pack
<b>TVET</b>	Technical and Vocational Education and Training



## 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>	<p>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.</p>
<b>Organisational Context</b>	<p>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.</p>
<b>Technical Knowledge</b>	<p>Technical knowledge is the specific knowledge needed to accomplish specific designated responsibilities.</p>
<b>Core Skills/ Generic Skills (GS)</b>	<p>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.</p>
<b>Electives</b>	<p>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.</p>
<b>Options</b>	<p>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.</p>