## Sample Question Paper for Solar LED Technician

## Framework

NOS	Element	Performance Criteria	Theory	Practical	Viva
		PC1. coordinate with supervisor for work order to identify job requirements	2	1	
		PC2. interpret drawings, schematics and site layout for PV system installation	2	2	
		PC3. prepare a plan to carry out the work as per organizational approved standards,	1	2	
	Identify job	procedures, appropriate techniques and manufacturer's instructions for PV system			
	requirements to	PC4, analyze the different aspects of solar technologies such as solar photo voltaic and	2	2	1
	prepare work plan and	solar thermal technologies, including possible risks/hazards of PV system			
	visit customer site		-	-	
		PC5. select calibrated tools/equipment, testing devices and materials/items to conduct solar installation work	2	2	
		PC6. identify the required system components, as per job specifications, in compliance	2	1	1
		with relevant performance and safety standards defined in IEC and other international			
		standards		1	
		PC8. perform preliminary checks of site prior to installation of PV system	2	2	1
		PC9. mark the work area accurately in accordance with measurements/estimations of	1	2	
		the diagram layout			
	Install PV panel structure	PC10. prepare appropriate type of structures which are treated prior to fixing the papels as per standard requirements.	1	2	1
	Structure	PC11. assemble the structure safely and securely using approved methods and	1	2	1
		materials			
		PC12. inspect that buildings have been waterproofed wherever the array cables pass	1	1	
		PC13, fix solar PV modules on different types of roof materials using appropriate	1	2	
		techniques			
		PC14. remove the roof safely without causing any damage to the surrounding area for home based solar lighting	1	2	
	Analyze specific requirements for roof	PC15. store removed roof covering safely at appropriate location, protected from any	1	1	
	structure	possible leakage or damage PC16, verify that the exposed roof area is in appropriate condition to carry out the	1	1	
		installation work	-	-	
		PC17. check that brackets do not interfere with the integrity of the roof covering	1	1	
ELE/N5905: Perform installation of Solar		PC18. inspect that the structure/brackets are in safe condition to undergo fixing	1	1	
PV System		PC19. fix the appropriate type of mounting system on the given structure by applying	1	2	1
		suitable fixing methods PC20. check that panels are in good working condition/undamaged during handling and	1	1	
	Assemble panels	move them to the installation area			
		PC21. fix the panels to the mounting system and brackets using correct fixing	1	2	1
		PC22. check that the panels are securely fastened to the brackets or mounting bars	1	1	
		using appropriate tools and method			
		PC23. report problems or issues, if any, with the safety of system structures and	1	1	
		PC24. select appropriate connecting methods of the modules	1	1	1
		PC25. terminate the wiring correctly in line with manufacturer's instructions,	1	1	
		operational and regulatory requirements			
		system installation	1	1	
	Connect panels and fix	PC27. perform approved cable routing procedures within solar photovoltaic module	1	2	1
	solar LED lightings	arrays		2	
		connecting cables and complete array structure, etc. using approved procedures	1	2	
		PC29. select the appropriate type of electronics luminaries such as LED lightings and	1	1	1
		system			
		PC30. document required information after handover of the completed work to the	1	2	
		customer PC31 provide information to customer about manufacturer's quide on apound	2		
		maintenance contract, warranty and guarantees, schedule maintenance tracker, etc.	2		
	Post installation	PC32. return all used tools and equipment safely in their appropriate storage area		1	
	activities	PC22 perform stors to dispose toxic and per taxis waste materials as not relevant	1	2	
		environmental safety policies	1	4	
		PC34. resolve customer queries, concerns and requests in line with relevant	2	2	
		organization s policies on customer service	40	50	10

		PC1 coordinate with supervisor for work order to identify type of system fault from the	2	2	
		PC1. coordinate with supervisor for work order to identify type of system fault from the PC2 identify required resources materials tools equipment and testing devices as per	2	2	1
	Identify work	given job specification	2	2	-
	requirements and	PC3. verify that the identified tools/equipment are in working condition and safe to	2	2	
	prepare service kit	handle			
		PC4. check that the required type, quality and quantity of materials are available	2	2	
		PC5. access the work site in accordance with organization's approved procedures and	2	3	1
		state the purpose of visit			
		PC6 plan customer's security coverage requirements in detail as per peeds	2	2	
		communicated	-	-	
		PC7. provide accurate information at all times in accordance with organizational quality	2	2	
	Perform routine	standards and procedures			
	maintenance work at	PC8. inspect that circuits or machines are safely isolated as per regulatory	2	2	1
	site	requirements and organizational procedures			
		PC9. check that the identified work plan conforms to environmental, architectural,	2	3	1
ELE/N5906: Perform		PC10, perform washing away dust/dirt from the surface of the panels, using approved	2	3	1
maintenance and		procedures and cleansing agents, to ensure panels/inverter are dust-free and moisture-		-	
repair of Solar PV		free			
System		PC11. inspect the integrated connection system for any loose wiring, connectors using	2	3	
		approved testing procedures			
		PC12, detect faults in the functionality of the system using photo voltaic panel fault finding methods	3	3	1
	Identify and repair	PC13 renair or replace faulty components using approved methods without causing	3	4	2
	faults	damage to any equipment, components, circuits, etc.	5	l.	-
		PC14. report any unprecedented problems identified in the work to responsible	2	3	
		authority and seek advice on how to resolve them			
		PC15. perform steps to handover the completed work to the customer and	2	4	1
		demonstrate the operation of the system as per standard quality requirements			
	Perform post repair	PC16 document the required information accurately after work completion as per	2	3	1
	and maintenance	organization's policies & procedures	-	-	-
	activities	PC17. resolve customer queries, concerns and requests efficiently and accurately in line	2	3	
		with relevant organizational customer service practices			
		PC18. return all used tools and equipment safely in designated storage	2	2	
		PC19. perform steps to dispose toxic and non-toxic waste materials as per relevant	2	2	
			40	50	10
		PC1. identify job-site hazards and possible causes of accident in the workplace	2	3	
		PC2. perform work complying to organizational safe working practices and observing	3	4	
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ELE/N1002: Apply health and safety practices at the workplace	Deal with workplace hazards Apply fire safety practices Follow emergencies, rescue and first-aid	hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc. PC3. 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 PC4. follow standard safety procedures while handling tool/,equipment, hazardous substances and while working in hazardous environments PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans) PC8. maintain appropriate posture while handling heavy objects PC10. take preventive measures to prevent fire hazards PC11. use appropriate fire extinguishers for different types of fires • Types of fires: Class A: e.g. ordinary solid combustibles, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no 1 PC12. exhibit rescue and first-aid techniques in case of fire or electrocution PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc. PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, PC15. participate regulary in case of a heart attack or cardiac arrest due to electric shock,	3 3 2 2 2 2 1 2 2 1 1 1 1 1 2	4 4 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	
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ELE/N1002: Apply health and safety practices at the workplace	Deal with workplace hazards Apply fire safety practices Follow emergencies, rescue and first-aid procedures Effective waste	hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc. PC3. 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 PC4. follow standard safety procedures while handling tool/,equipment, hazardous substances and while working in hazardous environments PC5. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding slag etc.) as per industry approved techniques PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exits, exhaust fans) PC3. maintain appropriate posture while handling heavy objects PC3. use approgriate fire extinguishers for different types of fires • Types of fires: Class A: e.g. ordinary solid combustibles, such as gasoline, propane, diesel fuel, tar, cooking oil, and similar substances; Class C: e.g. electrical equipment such as appliances, wiring, breaker panels, etc. (These categories of fires become Class A, B, and D fires when the electrical equipment that initiated the fire is no I PC12. exhibit rescue and first-aid techniques in case of fire or electrocution PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc. PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work PC15. use correct method to move injured people and others during an emergency PC17. identify recyclable and n	3 3 2 2 2 2 2 2 2 2 2 1 2 2 1 1 1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1	4 4 3 3 3 3 3 3 3 3 3 3 3 3 3	
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	Introduction to	PC1. identify employability skills required for jobs in various industries	1		
	Employability Skills				
	Employability Skills	PC2 identify and evaluate learning and employability portals		1	
		PC2. recognize the significance of constitutional values including civic rights and duties	1	1	
		citizenshin responsibility towards society etc. and personal values and ethics such as	1		
	Constitutional values	honesty integrity caring and respecting others etc			
	– Citizenship	nonesty, integrity, caring and respecting others, etc.			
		PC4 follow environmentally sustainable practices		1	
		PC5_recognize the significance of 21st Century Skills for employment	1	2	
			-	-	
	Becoming a				
	Professional in the	PC6. practice the 21st Century Skills such as SelfAwareness. Behaviour Skills, time	1	2	
	21st Century	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			
		PC7. use basic English for everyday conversation in different contexts, in person and	1	1	
		over the telephone			
	Basic English Skills	PC8. read and understand routine information, notes, instructions, mails, letters etc.	1	1	
		written in English			
		PC9. write short messages, notes, letters, e-mails etc. in English		1	
		PC10. understand the difference between job and career	1	1	
	Career Development				
	& Goal Setting				
		PC11. prepare a career development plan with short- and long-term goals, based on		1	
		PC12. follow verbal and non-verbal communication etiquette and active listening	1	1	
	Communication Skills	techniques in various settings			
		PC13. work collaboratively with others in a team	1	1	
		PC14. communicate and behave appropriately with all genders and PwD	1	1	
	<b>Diversity &amp; Inclusion</b>				
		PCIS. escalate any issues related to sexual harassment at workplace according to POSH		1	
		ALL DC16 colort financial institutions, products and somiless as not requirement	1		
Employability Skills		rcio. select mancial institutions, products and services as per requirement	1		
Employability Skills	Financial and Legal	PC17 carry out offline and online financial transactions safely and securely	1	1	
		PC18 identify common components of salary and	1	1	
	Literacy	compute income, expenses, taxes, investments		-	
		PC19, identify relevant rights and laws and use legal aids to fight against legal		1	
		exploitation			
		PC20. operate digital devices and carry out basic internet operations securely and	1	1	
		safely			
	Essential Digital Skills	PC21. use e- mail and social media platforms and virtual collaboration tools to work	1	1	
		effectively			
		PC22. use basic features of word processor, spreadsheets, and presentations	1	2	
		PC23. identify different types of Entrepreneurship and Enterprises and assess	1	1	
		opportunities for potential business through research			
	Entrepreneurship	PC24. develop a business plan and a work model, considering the 4Ps of Marketing	1	1	
		Product, Price, Place and Promotion		ł. —	L
		PC25. identify sources of funding, anticipate, and mitigate any financial/ legal hurdles		1	
		for the potential business opportunity			
		PC26. Identify different types of customers	1		
	Customer Service	PC27. Identify and respond to customer requests and needs in a professional manner.		1	
		PC28 follow appropriate byging and grooming standards		1	
		PC29 create a professional Curriculum vitae (Résumé)	1	1	
		n ezs. create a professional curriculum vitae (nesume)	1		
		PC30, search for suitable jobs using reliable offline and online sources such as	1		
		Employment exchange, recruitment agencies, newspapers etc. and job portals.			
	Getting ready for	respectively			
	apprenticeship & Jobs	PC31. apply to identified job openings using offline /online methods as per requirement		1	
		PC32. answer questions politely, with clarity and confidence, during recruitment and		1	
		selection			
		PC33. identify apprenticeship opportunities and register for it as per guidelines and		1	
		requirements			
		NOS TOTAL	20	30	

## **Blue Print**

Theory	135		60 Questions				
	50%	30%	20%				
<b>Required Questions</b>	30	18	12				
Required Marks	30	45	60				
Marks/Ques.	1	2.5	5				
NOS	Easy	Medium	Difficult	Allotted Questions	Allotted Marks	Total Marks	MARKS DIFFERENCE
1	10	6	3	19	40	40	0
2	10	6	3	19	40	40	0
3	5	4	4	13	35	35	0
4	5	2	2	9	20	20	0
Allotted Questions	30	18	12	60	135	135	0

Practical Marks	195	
NOS	Allotted Questions	Allotted Marks
1	6	50
2	4	50
3	6	65
4	1	30
Total	17	195

Viva Marks	20	
NOS	Allotted Questions	Allotted Marks
1	10	10
2	9	10
3	0	0
4	0	0
5	0	0
Total	19	20

NOS	Element	Performance Criteria	Question Sr. No.	Question Text	Option - 1	Option - 2	Option - 3	Option - 4	Marking	Correct Answer	Difficulty Level (Easy, Medium/ Difficult)
		PC1. coordinate with supervisor for work order to identify job requirements	1	The device that convert optical radiation into electrical energy is :	LED	Photo-detector	Solar cell	P-I-N diode	1	3	Easy
		PC2. interpret drawings, schematics and site layout for PV system installation	2	A solar cell unit is basically a:	A semiconductor Triode	A semiconductor Diode	A Junction between two good	None of the above	1	2	Easy
		PC3. prepare a plan to carry out the work as per organizational approved standards, procedures, appropriate techniques and manufacturer's instructions for PV system installation	3	Solar array is a:	cascade connected solar plant	combination of solar panel with inverter	conductors series and parallel combination of solar cells	parallel combination of solar plant with another plant	2.5	3	Medium
	ldentify job requirements to prepare work plan and visit	PC4. analyze the different aspects of solar technologies such as solar photo voltaic and solar thermal technologies, including possible risks/hazards of PV system	4	Which metal is used for making solar cell?	Gold	Iron	Aluminium	Silicon	1	4	Easy
	customer site										
		PCS. select calibrated tools/equipment, testing devices and materials/items to conduct solar installation work	5	Solar cells work on the principle of	Isolation and Opto coupling	Isolation	Photo Voltaic	Opto Coupling.	5	3	Difficult
		PC5. select calibrated tools/equipment, testing devices and materials/items to conduct solar installation work	6	Photovoltaic cells are materials.	superconductor	conductor	semiconductor	bad conductor	1	3	Easy
		PLD. Identify the required system components, as per job specifications, in compliance with relevant performance and safety standards defined in IEC and other international standards	7	The element required to solar energy conversion is?	Beryillum	SIICON	Tantalum	Carbon	2	2	Umicuit
		PC8. perform preliminary checks of site prior to installation of PV system	8	The region where all of the light from the source is blocked is called:	Antumbra	Shadow	Umbra	Penumbra	1	3	Easy
		PC9. mark the work area accurately in accordance with measurements/estimations of the diagram layout	9	A solar water heater cannot be used to get hot water on a 	hot day	sunny day	windy day	cloudy day	2.5	4	Medium
	Install PV panel structure	PC10: prepare appropriate type of structures which are treated prior to fixing the panels as per standard requirements	10	A solar thermal collector:	collects solar energy and reflects it back	absorbs the solar radiation and dissipates it to the ambient	collects and converts solar energy into electrical energy	collects and converts the solar energy into thermal energy and delivers it to the next stage of the system	1	4	Easy
ELE/N5905: Perform installation of Solar PV System		PC11. assemble the structure safely and securely using approved methods and materials	11	The emf of a primary cell depends upon the:	Nature of the electrode	Nature of the electrolyte and Nature of the electrode	Physical dimension of the cell	None of these	1	2	Easy
		PC12. inspect that buildings have been waterproofed wherever the array cables pass through the building fabric	12	The current from a solar panel is increased by:	Connecting solar cells in parallel	Connecting solar cells in series	Using NICAD cells in series with the solar cells	Using lead-acid cells in series with the solar cells	5	1	Difficult
		PC13. fix solar PV modules on different types of roof materials using appropriate techniques	13	Turn-on of thyristor takes place when	There is a positive current pulse at the gate	The anode to cathode voltage is positive and there is a positive current pulse at the gate	Anode to cathode voltages is positive	Anode to cathode voltages is negative	1	2	Easy
		PC14. remove the roof safely without causing any damage to the surrounding area for home based solar lighting	14	Internal voltage drop of a voltage source:	Independent of the load current supplied	Does not influence the terminal voltage	Depends on the internal resistance of the source	Does affect the emf of the source	1	3	Easy
	Analyze specific requirements for roof	PC15. store removed roof covering safely at appropriate location, protected from any possible leakage or damage	15	What is the solar wind?	wind in the solar system	solar energy	the continuous flow of charged particles from the sun	None of these	1	3	Easy
		PC16.verify that the exposed roof area is in appropriate condition to carry out the installation work	16	Which of the following is currently a hindrance to more widespread use of solar power?	Sunlight is internittent and solar batteries are not as advanced as we would like.	Solar panels are expensive, partly because they are made with silicon, which is costly to produce.	Sunlight is internittent and solar batteries are not as advanced as we would like. and Solar panels are expensive, partly because they are made they are made with silicon, which is costly to produce.	None of these	2.5	3	Medium
		PC19. fix the appropriate type of mounting system on the given structure by applying suitable fixing methods	17	During the discharge of lead acid battery, the terminal voltage decreases with the decrease in:	State of charge	Discharge rate	Temperature	None of these	2.5	2	Medium
		PC20. check that panels are in good working condition/undamaged during handling and move them to the installation area	18	Best protection is provided by HRC fuses in case of:	Overloads	Open circuits	Short circuits	None of these	2.5	3	Medium
	Post installation activities	PC30. document required information after handover of the completed work to the customer	19	Which part of a house receives majority of solar radiation?	Roof	Side walls	Floor	Doors	2.5	1	Medium

		PC1. coordinate with	1	The efficiency of an LED for	applied voltage	current injected	temperature	level of doping	1	2	Easy
		supervisor for work order to identify type of system fault from the job specifications		generating light is directly proportional to the:							
		PC2. identify required resources, materials, tools, equipment and testing devices as per given job specification	2	What is the use of an LED driver?	It converts DC to AC	It converts AC to DC	It converts AC to AC	It converts DC to DC	2.5	2	Medium
	Identify work requirements	PC2. identify required resources, materials, tools, equipment and testing devices as per given job specification	3	In LED, light is emitted because:	Light falls on LED	Recombination of charges takes place	PN junction emits light when heated	IR light falls on LED	1	2	Easy
	and prepare service kit	PC3. verify that the identified tools/equipment are in working condition and safe to handle	4	Which of the following materials can be used to produce infrared LED?	Si	GaAs	CdS	PbS	1	2	Easy
		PC3. verify that the identified tools/equipment are in working condition and safe to handle	5	Which of the following is not a characteristic of LED?	Fast action	High Warm-up time	Low operational voltage	Long life	1	2	Easy
		PC4. check that the required type, quality and quantity of materials are available	6	LEDs work on the principle of	Electromagnetic induction	Conduction	Electroluminesc ence	Induction	5	3	Difficult
		PCS. access the work site in accordance with organization's approved procedures and state the procedures and state the	7	Aluminium alloys are used to obtain light.	Red	Orange	Yellow	All of the above	1	4	Easy
		PC5. access the work site in accordance with organization's approved procedures and state the	8	Internal absorption in DH surface emitter Burros type LEDs is	Cannot be determined	Negligible	High	Very low	5	4	Difficult
		purpose of visit PC6. plan customer's security coverage requirements in detail as per needs communicated	9	In a multimode fiber, much of light coupled in the fiber from an LED is	Increased	Reduced	Lost	Unaffected	1	3	Easy
		PC6. plan customer's security coverage requirements in detail as per needs communicated	10	Identify the best location for the inverter from the list.	Inside a sealed box	Outside and exposed to sunshine	Near to, but not directly above, the battery	On the battery	1	3	Easy
		PC7. provide accurate information at all times in accordance with organizational quality	11	Which one out of the following is a potential safety hazard?	A flat roof with a sound structure	A car parked underneath	The roof is rusted	A small tree shading the roof	1	3	Easy
		standards and procedures									
ELE/NS906: Perform maintenance and repair of Solar PV System	Perform routine maintenance work at site	PC7. provide accurate information at all times in accordance with organizational quality standards and procedures	12	The client has recommended a number of locations where the battery could be installed. Which location is the best location for the battery to be installed?	On the verandah in the sun.	In a battery box that is located on the verandah with ventilation inlets and outlet vents on opposite sides and removable lid that could be locked for	In a box in the bathroom with inlet and outlet vents to the room.	Directly under the inverter and controller.	5	2	Difficult
		PC8. inspect that circuits or	13	Which one of the following is	Isolator	security reasons	gPV fuse	Terminal block	1	3	Easy
		machines are safely isolated as per regulatory requirements and organizational procedures		an overcurrent protection device?							
		PC8. Inspect that circuits or machines are astery solated as per regulatory requirements and organizational procedures	14	Which of the following methods is recommended for attaching an array frame to the supporting structure?	Using suitable screws through the mounting feet of the array through the metal roof into the rafters under the roof.	Using appropriate roof tile brackets that slide under the tile, are screwed or bolted onto the rafter and the array frame bolts to the appropriate location on the bracket.	Using plastic cable ties.	Both a and b.	1	4	£ay
		PC9: check that the identified work plan conforms to environmental, architectural, structural, site and regulatory requirements	15	How should a lead acid battery bank be installed?	In a battery box inside a building with the ventilation outlet at the highest point on the box to the inside of the building	In a dedicated room with the with the ventilation outlet vented to the outside at the highest point in the room.	In a dedicated room with the with the ventilation outlet vented to the outside at the lowest point in the room	Any of the above	2.5	2	Medium
		PC12. detect faults in the functionality of the system using photo voltaic panel fault finding methods	16	What is the smallest unit of solar photovoltaic system?	Solar Cell	Solar Array	Solar Module	Solar Panel	2.5	1	Medium
	Identify and repair faults	PC13. repair, or replace, faulty components using approved methods without causing damage to any equipment, components, circuits, etc.	17	Fill factor of solar cell is always:	Greater then 1	Less than 1	Equal to 1	Any of the abov	2.5	4	Medium
		PC14. report any unprecedented problems identified in the work to responsible authority and seek advice on how to resolve them	18	Trapping the sun's energy without using any mechanical devices is known as	Concentrating solar power	Solar thermal energy	Active solar energy	Passive solar energy	2.5	4	Medium
	_	PC17. resolve customer queries, concerns and requests efficiently and accurately in line with relevant organizational customer service practices	19	A pyranometer is used for mesurement of	Direct radiation only	Diffuse radiation only	Direct as well as diffuse radiation	All of the above	2.5	3	Medium
		NOS TOTAL		Press and a last	de staate	destants 1.1	destants.	destante 1.1	40		
	Deal with workplace hazards	PC1. identify job-site hazards and possible causes of accident in the workplace	1	Ergonomics is the science of:	designing computers	designing desks	designing equipment and workplace for a comfortable and safe environment	designing chairs	1	3	Lasy
		PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc.	2	Emergency Action Plans include:	Training and drills	Shelters and evacuation	Emergency lights	All of these	S	4	Difficult

		PC3. 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	3	Personal Protective Equipment at Work Regulations (1992) requires employers to:	be sure of how to protect and store chemicals safely	give training to employees on how to handle and move large heavy objects	give training to employees for hygiene and the use of protective clothing	demonstrate how to use electrical equipment correctly and safely	5	3	Difficult
		PC4. follow standard safety procedures while handling tool/, equipment, hazardous substances and while working in hazardous environments	4	What is the purpose of antiseptic?	bodywash	to disinfect wounds	use to sanitize	washing hand	1	2	Easy
		PC6. avoid damage of components due to negligence in electrostatic discharge (ESD) procedures	5	Digital Wellbeing or Digital Wellness refers to	the impact of technologies and digital services on people's mental, physical, and emotional bealth	is about making and maintaining a healthy relationship with technology	is about how the internet and technology can make us feel.	All of the above	2.5	4	Medium
ELE/N1002: Apply health and safety practices at the		PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments; colohing and installations (fire exits, exhaust fans)	6	A medical emergency that is caused by a neurological disorder with no known cause in one half of patients is:	Diabetic coma	Asthma attack	An epileptic seizure	Stroke	1	3	Easy
workplace		PC9. apply good housekeeping practices at all times	7	A risk assessment could be best defined as:	A systematic process of evaluating the potential risks that may be involved in an activity	A situation involving exposure to danger	The action of assessing someone or something	Actions implementing risk evaluation decisions	1	1	Easy
	Apply fire safety practices	PC10. take preventive measures to prevent fire hazards	8	A fire extinguisher identified with a black rectangle containing carbon dioxide, is suitable for what kind of fire?	Wood, paper, oils and fats	Burning liquid	Wood, papers and textiles	Electrical and flammable liquids	1	4	Easy
		PC12. exhibit rescue and first- aid techniques in case of fire or electrocution	9	The action of sending Text messages to fraudulently obtain another person's bank details is called:	Phishing	Smishimg	Farming	Virus	5	2	Difficult
	Follow emergencies, rescue and first-aid procedures	PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc.	10	Why do workplace health and safety policies need to be set in place?	create a framework for a safe working environment	give employees instructions on selling products	give employees opportunities to update their practice	make the employer aware of the health and safety in the workplace	2.5	1	Medium
		PCI5_participate regularly in emergency procedures such as training alarm safe/efficient, evocuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work	11	is the process reclaiming row materials and recuising them to create new products.	Reducing	Repurposing	Recycling	Composting	2.5	3	Medum
	Effective waste management/recycling	PC17. identify recyclable and non-recyclable, and hazardous waste generated	12	What can you recycle?	Paper, plastic, glass, metal	Dirty Diapers	Food (if not composted)	Hair	2.5	1	Medium
	practices	PC20. deposit non- recyclable and reusable material at identified location	13	What is one of the main causes of e-waste?	Population Growth	Global Warming	Pollution	All of the above	5	1	Difficult

	Introduction to Employability Skills	PC1. identify employability skills required for jobs in various industries	1	To be a self-learner, one needs to have a mindset.	Fixed Mind set	Positive Mind set	Growth Mindset	Negative Mindset	1	3	Easy
	Constitutional values – Citizenship	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.	2	An action that a person completes of their own free will is called a/an:	Duty	Responsibility	Draft	Tolerance	2.5	2	Medium
	Becoming a Professional in the 21st Century	PC6, practice the 21st Century Skills such as SelfAwareness, Behaviour Skills, time management, critical and adaptive thinking, problem-solving, creative thinking, social and cultural awareness, learning to learn for continuous learning etc. in personal and professional life	3	When is acceptable to be dishonest in a professional setting?	When it benefits the employee	When it benefits the client	When it benefits the supervisor	It is never acceptable to be dishonest	1	4	Easy
DGT/VSQ/N0102: Employability Skills	Basic English Skills	PC8. read and understand routine information, notes, instructions, mails, letters etc. written in English	4	The main four language skills are:	Listening, speaking	reading, writing	grammar, vocabulary	both A/B	5	4	Difficult
	Career Development & Goal Setting	PC10. understand the difference between job and career	5	A is an aim or purpose, or an end to which effort is directed.	resume	destination	idea	goal	1	4	Easy
	Communication Skills	PC12. follow verbal and non- verbal communication etiquette and active listening techniques in various settings	6	What is Body Language?	Postures, gestures, and facial expressions.	The exchange of information through the use of words.	Your words say one thing but your body language say another.	Speak from your point of view.	5	1	Difficult
	Diversity & Inclusion	PC14. communicate and behave appropriately with all genders and PwD	7	Which of the following are protected characteristics?	Gender reassignment	Pregnancy and maternity	Religion or belief	All of the above	1	4	Easy
	Financial and Legal Literacy	PC16. select financial institutions, products and services as per requirement	8	What is "a plan to manage money"?	A budget	A financial construct	A savings scheme	All of the above	1	1	Easy
	Entrepreneurship	PC23. identify different types of Entrepreneurship and Enterprises and assess opportunities for potential business through research	9	The capacity for innovation, investment and expansion in new markets, products and techniques.	Business	Businessman	Entrepreneur	Entrepreneurshi p	2.5	4	Medium
	1	NOT TOTAL							20		

## Practical

NOS	Element	Marking	Performance Criteria	Questions/ Demonstration/ Scenario	Answer Rubrics	Weightage (sum should be 100 %)
			PC1. coordinate with supervisor for work order to identify job requirements			
		1			coordinate with supervisor for work order to identify job requirements -interpret drawings, schematics and site layout for PV system installation	
		2	PC2. interpret drawings, schematics and site layout for PV system installation	-	-prepare a plan to carry out the work as per organizational approved standards,	
	Identify job requirements to		PC3. prepare a plan to carry out the work as per organizational approved standards, procedures, appropriate techniques and manufacturer's instructions for PV system	How to identify job	installation	
	prepare work plan	2	installation PC4 analyze the different schedule of color technologies such as color photo yoltais and	requirements to prepare work	-analyze the different aspects of solar technologies such as solar photo voltaic and solar thermal technologies, including possible risks/hazards of PV system	
	site	2	solar thermal technologies, including possible risks/hazards of PV system	•••••••	-select calibrated tools/equipment, testing devices and materials/items to conduct solar installation work	
		2	PC5. select calibrated tools/equipment, testing devices and materials/items to conduct solar installation work		-identify the required system components, as per job specifications, in compliance with relevant performance and safety standards defined in IEC and other	
			PC6. identify the required system components, as per job specifications, in compliance		international standards	
		1	standards			
		2	PC7. Visit customer site as per work plan for carrying out installation PC8. perform preliminary checks of site prior to installation of PV system		visit customer site as per work plan for carrying out installation. perform preliminary checks of site prior to installation of PV system.	
		2	PC9. mark the work area accurately in accordance with measurements/estimations of the diagram layout		mark the work area accurately in accordance with measurements/estimations of the diagram layout	
	Install PV panel structure	2	PC10. prepare appropriate type of structures which are treated prior to fixing the panels as per standard requirements	How to install PV panel structure?	prepare appropriate type of structures which are treated prior to fixing the panels as	
		2	PC11. assemble the structure safely and securely using approved methods and materials		assemble the structure safely and securely using approved methods and materials.	
		1	PC12. inspect that buildings have been waterproofed wherever the array cables pass through the building fabric.		through the building fabric.	
		-	PC13. fix solar PV modules on different types of roof materials using appropriate		Fix solar PV modules on different types of roof materials using appropriate	
		2	techniques		techniques.	
	Analyze specific	2	PC14. remove the root sately without causing any damage to the surrounding area for home based solar lighting	How to analyze specific	home based solar lighting.	
	requirements for roof structure	1	PC15. store removed roof covering safely at appropriate location, protected from any possible leakage or damage	requirements for roof structure?	Store removed roof covering safely at appropriate location, protected from any possible leakage or damage.	
		1	PC16. verify that the exposed roof area is in appropriate condition to carry out the installation work		Verify that the exposed roof area is in appropriate condition to carry out the installation work.	
ELE/N5905: Perform installation of Solar		1	PC17. check that brackets do not interfere with the integrity of the roof covering		Check that brackets do not interfere with the integrity of the roof covering.	
PV System		1	PC18. inspect that the structure/brackets are in safe condition to undergo fixing		inspect that the structure/brackets are in safe condition to undergo fixing procedures.	
			PC19. fix the appropriate type of mounting system on the given structure by applying		fix the appropriate type of mounting system on the given structure by applying	
		2	PC20. check that panels are in good working condition/undamaged during handling and		check that panels are in good working condition/undamaged during handling and	
	Assemble panels	1	PC21. fix the panels to the mounting system and brackets using correct fixing	How to assemble panels?	move them to the installation area. fix the panels to the mounting system and brackets using correct fixing	
		2	accessories/cable containments PC22. check that the panels are securely fastened to the brackets or mounting bars		accessories/cable containments. check that the panels are securely fastened to the brackets or mounting bars using	
		1	using appropriate tools and method PC23. report problems or issues, if any, with the safety of system structures and		appropriate tools and method. report problems or issues, if any, with the safety of system structures and violation	
		1	violation of regulatory norms to the appropriate authority PC24, select appropriate connecting methods of the modules		of regulatory norms to the appropriate authority.	
		1	PC25. terminate the wiring correctly in line with manufacturer's instructions,		select appropriate connecting methods of the modules.	
	Connect panels and fix solar LED lightings		PC26. allocate appropriate string voltages and current to inverter rating and overall		terminate the wiring correctly in line with manufacturer's instructions, operational and regulatory requirements.	
			PC27. perform approved cable routing procedures within solar photovoltaic module	All How to connect panels and fix in	allocate appropriate string voltages and current to inverter rating and overall system installation.	
		2	arrays PC28, test the operation of the PV system including panel/module connections.	solar LED lightings?	perform approved cable routing procedures within solar photovoltaic module arrays. test the operation of the PV system including panel/module connections, connecting	
		2	connecting cables and complete array structure, etc. using approved procedures		cables and complete array structure, etc. using approved procedures.	
			PC29. select the appropriate type of electronics luminaries such as LED lightings and their specifications that comply with performance parameters of the installed PV		specifications that comply with performance parameters of the installed PV system.	
		1	system PC30. document required information after handover of the completed work to the			
		2	customer		document required information after handover of the completed work to the customer.	
			PC31. provide information to customer about manufacturer's guide on annual maintenance contract, warranty and guarantees, schedule maintenance tracker, etc.		provide information to customer about manufacturer's guide on annual maintenance	
	Post installation activities		PC32. return all used tools and equipment safely in their appropriate storage area	How to do the post installation activities?	return all used tools and equipment safely in their appropriate storage area.	
		1	PC33. perform steps to dispose toxic and non-toxic waste materials as per relevant		environmental safety policies.	
		2	environmental safety policies PC34. resolve customer queries, concerns and requests in line with relevant	-	resolve customer queries, concerns and requests in line with relevant organization's policies on customer service.	
		2 50	organization's policies on customer service NOS TOTAL			
		2	PC1. coordinate with supervisor for work order to identify type of system fault from the PC2. identify required resources, materials, tools, equipment and testing devices as per	-	coordinate with supervisor for work order to identify type of system fault from the job specifications.	
	Identify work requirements and	2	given job specification PC3, verify that the identified tools/equipment are in working condition and safe to	How to identify work requirements and prepare	identify required resources, materials, tools, equipment and testing devices as per given job specification.	
	prepare service kit	2	handle PCA check that the required type, quality and quantity of materials are qualitable	service kit?	verify that the identified tools/equipment are in working condition and safe to handle.	
		2	PCS access the work site in accessions with accession of a second		check that the required type, quality and quantity of materials are available.	
		-	state the purpose of visit		access the work site in accordance with organization's approved procedures and state the purpose of visit.	
		3	PC6. plan customer's security coverage requirements in detail as per needs	1	plan customer's security coverage requirements in detail as per needs communicated.	
		2	communicated PC7. provide accurate information at all times in accordance with organizational quality	1	provide accurate information at all times in accordance with organizational quality standards and procedures.	
	Perform routine	2	standards and procedures PC8. inspect that circuits or machines are safely isolated as per regulatory requirements	How to perform routine	inspect that circuits or machines are safely isolated as per regulatory requirements and organizational procedures	
	site	2	and organizational procedures PC9. check that the identified work plan conforms to environmental, architectural.	maintenance work at site?	check that the identified work plan conforms to environmental, architectural,	
ELE/N5906: Perform		3	structural, site and regulatory requirements PC10, perform washing away dust/dirt from the surface of the papels, using approved		perform washing away dust/dirt from the surface of the panels, using approved	
maintenance and		2	procedures and cleansing agents, to ensure panels/inverter are dust-free and moisture- free		procedures and cleansing agents, to ensure panels/inverter are dust-free and moisture-free.	
System			PC11. inspect the integrated connection system for any loose wiring, connectors using		inspect the integrated connection system for any loose wiring, connectors using approved testing procedures.	
			PC12. detect faults in the functionality of the system using photo voltaic panel fault		detect faults in the functionality of the system using photo voltaic panel fault finding	
	Identify and repair	3	PC13. repair, or replace, faulty components using approved methods without causing	How to identify and repair	repair, or replace, faulty components using approved methods without causing	
	faults	4	damage to any equipment, components, circuits, etc. PC14. report any unprecedented problems identified in the work to responsible	faults?	damage to any equipment, components, circuits, etc. report any unprecedented problems identified in the work to responsible authority	
		3	authority and seek advice on how to resolve them PC15. perform steps to handover the completed work to the customer and		and seek advice on how to resolve them.	
			demonstrate the operation of the system as per standard quality requirements		perform steps to handover the completed work to the customer and demonstrate the operation of the system as per standard quality requirements.	
	Perform post repair	4	PC16, document the required information accurately after work completion as par		document the required information accurately after work completion as per organization's policies & procedures.	
	and maintenance	3	organization's policies & procedures	How to perform post repair and maintenance activities?	resolve customer queries, concerns and requests efficiently and accurately in line with relevant organizational customer service practices	
	ocuvities	3	with relevant organizational customer service practices	1	return all used tools and equipment safely in designated storage.	
		2	PC19. perform steps to dispose toxic and non-toxic waste materials as per relevant	4	environmental safety policies.	
		2	environmental safety policies			

	Deal with workplace hazards	3 4 4 4	PC1. identify job-site hazards and possible causes of accident in the workplace PC2. perform work complying to organizational safe working practices and observing hazard signs displayed on containers, equipment and in various work areas such as inside buildings, in open areas and public spaces, etc. PC3. 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 PC4. follow standard safety procedures while handing fool/, equipment, hazardous substances and while working in hazardous environments	What are the 5 basic workplace hazards?	The S major hazards in the workplace? Falls and Falling Objects. Chemical Exposure. Fire Hazards. Electrical Hazards. Repetitive Motion Injury.	
ELE/N1002: Apply — health and safety		4 3 3 3 3	PCS. dispose electronic waste (such as toxins; metals such as lead, cadmium, barium; flame retardant plastics, welding sige (cl.) as per industry approved techniques PC6, avoid damage of components due to negligence in electrostatic discharge (ESD) procedures PC7. locate general health and safety equipment in the workplace such as fire extinguishers; first aid equipment; safety instruments, clothing and installations (fire exts, exhaust famoust posture while handling heavy objects PC6, apply good housekeeping practices at all times.	How can we prevent workplace hazards?	Create a Safe Work Area Keep an orderly workplace. Poor housekeeping can cause serious health and safety hazards Inspect vehicles before and after use. DRIVE SAFELY. Continually cultivate a safety standard. Take breaks and move around regularly throughout the day Pay attention to workstation ergonomics.	
health and safety practices at the workplace	Apply fire safety practices	3	PC10. take preventive measures to prevent fire hazards PC11. use appropriate fire extinguishers for different types of fires: Class A: e.g. of dimary solid combustibles, such as voog, paper, cloth, plastic, charcoal, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, etc.; Class B: flammable liquids and gases, such as gasoline, propane, diesel fuel, tar, applances, winni, preaker panels, etc. (These categories of fires become Class A, B, planz, etc.; etc.; and first-aid exclipiment that initiated the fire is no 1 PC12. exhibit rescue and first-aid excliniques in case of fire or electrocution	What is the best way to practice fire safety?	Top Tips for Fire Safety Install smoke alarms on every level of your home, inside bedrooms and outside sleeping areas. Test smoke alarms every month Tak with all armini members about a fire escape plan and practice the plan twice a year. If a fire occurs in your home, GET OUT, STAY OUT and CALL FOR HELP.	
	Follow emergencies, rescue and first-aid procedures	3 2 4 4	PC13. administer appropriate first aid to victims in case of bleeding, burns, choking, electric shock, poisoning etc. PC14. administer first aid to victims in case of a heart attack or cardiac arrest due to electric shock, PC15. participate regularly in emergency procedures such as raising alarm, safe/efficient, evacuation, correct means of taking shelter and escaping, correct assembly point, roll call, correct return to work PC16. use correct method to move injured people and others during an emergency	What are the steps in emergency action and first aid?	DRABC is an acronym to describe the procedures used by first aiders when providing first aid: D for Danger – Assess the situation. R for Response – Check consciousness, check on vital signs. A for Airway – Open airway. B for Breathing. – Check respiration rates. C for Circulation – Give chest compressions.	
	Effective waste management/recycli ng practices	3 2 2 3 2	PC17. identify recyclable and non-recyclable, and hazardous waste generated PC18. segregate waste into different categories PC19. ensure disposal of non-recyclable waste appropriately PC20. deposit non-recyclable and reusable material at identified location PC21. follow rocesses specified for disposal of hazardous waste	What are the 5 principles of recycling? What are three 3 reasons why recycling is important?	The S R's: Refuse, Reduce, Reuse, Repurpose, Recycle STEP ONE: REFUSE. Refuse: the first element of the S R's hierarchy STEP TWO: REFUELE. Reduce the use of harmful, wasteful, and non-recyclable S Reasons Why You Should Recycle More Protecting the ecosystem and wildlife. When you recycle more, you help to put a break to the exploitation of natural resources extracted from the natural habitats of	
		65	NOS TOTAL		break to the explortation of interior resources extracted from the interior instructs of	
	Introduction to Employability Skills	5	PC1. identify employability skills required for jobs in various industries PC2. identify and explore learning and	To carry out any online transaction, you first need to open a bank account.	Step 1: Fill in the Account Opening Form This form requires you to provide the following information: • Personal details (name, address, phone number, date of birth, gender, occupation,	
	Constitutional values – Citizenship	5	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	Demonstrate the process of opening a bank account.	Step 2: Affix your Photograph Slick a recent photograph of yourself in the allotted space on the form.	
Becc Prof 21st DGT/VSQ/NO102: Employability Skills (60 Hours)	Becoming a Professional in the 21st Century	10	PCS: 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		Step 3: Provide your Know Your Customer (KYC) Details KYC (Know Your Customer) is a process that helps banks verify the identity and address of their customers. To open an account, every individual needs to submit certain approved documents with respect to photo identity (ID) and address proof. Some Officially Valid Documents (VOVs) are: • Passport • Driving License • Voters' identity Card • PAR Card • UDAI (Unique Identification Authority Of India) (Aadhaar) Card	
	Basic English Skills	10	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		Step 4: Submit All your Documents Submit the completed Account Opening Form and KYC documents.	
		30	NOS TOTAL			4

NOS	Element	Performance Criteria	Questions	Suggested Answers/Steps	Marking	Weightage (sum should be 100 %)
ELE/NS905: Perform installation of Solar PV System	Identify job requirements to prepare work plan and visit customer site	PC4. analyze the different aspects of solar technologies such as solar photo voltaic and solar thermal technologies, including possible risks/hazards of PV system	What are the different solar photovoltaic technologies?	There are three types of PV cell technologies that dominate the world market: monocrystalline silicon, polycrystalline silicon, and thin film.	1	
		PC6. identify the required system components, as per job specifications, in compliance with relevant performance and safety standards defined in IEC and other international standards	What is the international standard for workplace health and safety?	ISO 45001 is designed to prevent work-related injury and ill-health and to provide safe and healthy workplaces.	1	
	Install PV panel structure	PC8. perform preliminary checks of site prior to installation of PV system	What are the things to consider in preparing installation of the PV system?	This can include: System Performance Statements. Lime Drawings and Schematics. Roof Layouts. Grid Connection Documents. Solar Panel Testing and Records.	1	
		PC10. prepare appropriate type of structures which are treated prior to fixing the panels as per standard requirements	Which structure is best for solar panels?	High rise or Elevated structure: The elevated design structure, also known as the high-rise structure, offers improved solar efficiency in a limited roof space. The solar panels are installed at a height of 1.8m to 2.5m from the ground.	1	
		PC11. assemble the structure safely and securely using approved methods and materials	What are the safety procedures when working around solar panels?	To help keep workers safe while installing solar panels and systems: Keep work areas dry and clear of obstructions. If employees are working six feet or higher, install guardralls around ledges, suncots and skylights Provide workers with a body harness anchored to the rooftop to stop a potential fall.	1	
	Assemble panels	PC19. fix the appropriate type of mounting system on the given structure by applying suitable fixing methods	What are the three types of panel mounting system?	There are many types of solar mounts, but the three primary options for commercial solar arrays include rooftop, ground mount, and parking canopy locations.	1	
		PC21. fix the panels to the mounting system and brackets using correct fixing accessories/cable containments	What are the standard procedures involved in the fixing securing of cables?	Securing Cables Use the proper size of fastener for the size and number of cables being secured. Use insulated staples and fasteners Position cables flat against framing before securing them; do not fasten cables on-edge. Secure cables smugh but not so tightly that the cable is damaged or indented from the fastener.	1	
	Connect panels and fix solar LED lightings	PC24. select appropriate connecting methods of the modules	What connections are used to connect solar modules?	Solar panels are similar to batteries in that they have two terminals: positive and negative. A series connection is made by connecting the positive terminal of one panel to the negative terminal of another. Connecting at least two solar panels in this manner becomes a PV source circuit.	1	
		PC27. perform approved cable routing procedures within solar photovoltaic module arrays	What is the procedure to construct solar PV array?	Design and determine the size of your system based on your energy needs Purchase the components that make up a solar panel Purchase additional solar equipment like liverters and racking Install the racking for your solar panels Connect the solar panels to the racking equipment Install the proper solar inverter.	1	
		PC29. select the appropriate type of electronics luminaries such as LED lightings and their specifications that comply with performance parameters of the installed PV system	What are the different types of LED light bulb?	LED bulbs come in four primary categories: A-shape, reflectors, decorative, and specialty. A-shape LEDs are the most common type and are frequently used throughout the home.	1	
		NOS TOTAL			10	
ELE/NS906: Perform maintenance and repair of SJaar PV System	Identify work requirements and prepare service kit	Prozi deminy required resources, materials, doos, equipment and testing devices as per given job specification	What are the reasons why we need to maintain the required materials tools and equipment?	All tools, equipment, and vehicles must be properly maintained so that workers are not endangered. Construction regulations require inspections of vehicles, tools, machines, and equipment before use.	1	
	Perform routine maintenance work at site	PC5. access the work site in accordance with organization's approved procedures and state the purpose of visit	How would you ensure that all safety procedures are followed on a job site?	Personal Protective Equipment (PPE) Follow Environmental Guidelines. Keep the Work Area Clean. Ladder Safety. No Crowing inside the Site Perimeter. Lifting Precatulons. Proper Site Training. Safety Programs and Culture.	1	
		PC8. Inspect that circuits or machines are safely isolated as per regulatory requirements and organizational procedures	What is an isolation of circuits are required to isolate?	Electrical isolation is the separation between two circuits that restricts the direct current (CO) and any unwanted alternating current (AC) in a power supply. The isolation prevents dangerous voltages from passing to the operator in the event of an electrical fault/failure or during a surge from lightning.	1	
		PC9. check that the identified work plan conforms to environmental, architectural, structural, site and regulatory requirements	When designing a structure what ways can an architect or developer ensure the project will be green?	This can involve designing energy-efficient buildings using renewable energy sources, such as solar panels or wind turbines. Green architects also consider the materials used in construction and strive to use sustainable, low-impact materials that can be recycled or reused.	1	
		PC10. perform washing away dust/dirt from the surface of the panels, using approved procedures and cleansing agents, to ensure panels/inverter are dust-free and moisture- free	How do you clean solar panels from the ground?	For light dirt and dust, use a hose to rinse off the panels from the ground. Hosing the panels down is the safest, easiest, and most cost-saving way to improve your solar energy performance. There may be specific recommendations for cleaning your solar panels, such as whether the system should be shirt down.	1	
	Identify and repair faults	PC12. detect faults in the functionality of the system using photo voltaic panel fault finding methods	What is fault detection algorithm for grid connected photovoltaic plants?	The fault detection algorithm compares the measured and theoretical output power using statistical t-test. In order to determine the location of the fault, the ratio between the measured and theoretical DC power and voltage is monitored.	1	
		PC13. repair, or replace, faulty components using approved methods without causing damage to any equipment, components, circuits, etc.	What is a repair vs replacement?	A repair for fixing something that's already there so that it works. A replacement means getting rid of the old thing and getting a whole new thing. Generally, repairs cost less than replacements, but the tax advantages or operating efficiency of a replacement might look really good to the landlord.	1	
	Perform post repair and maintenance activities	PC15. perform steps to handover the completed work to the customer and demonstrate the operation of the system as per standard quality requirements	What is completion of handover process?	Completion of the works and handover to the occupier marks the point of transition in to occupancy. The process is effectively one of the fitted-out space being handed over and accepted by the occupier and owner as completed in accordance with the requirements.	1	
		PC16. document the required information accurately after work completion as per organization's policies & procedures	What information should be included in policies and procedures?	Policy checklist: set out the aim of the policy. explain why the policy was developed. list who the policy applies to. set out what is acceptable or unacceptable behaviour. set out the consequences of not complying with the policy.	2	
				provide a date when the policy was developed of updated.	40	1

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