Ace Assessments

Qn Bank : PSS/Q 0107 Consumer Energy Meter Technician

PSS N 0114 (Manually Remove, Change and Install Low Voltage, Single & Three Phase Energy Meters)

S No	Performance Criteria (PC)	Question	Option- A	Option- B	Option- C	Option- D	Complexity
1	PC20	**What are the Duties and Responsibilities of Consumer Energy Meter Technician working in a Power Distribution Company?**	He shall be responsible for upkeep of T&P and safety appliances supplied to him and keep them in working order	He is responsible to install new energy meter, make connections, test and sealing of energy meter at consumer premises.	He shall maintain diaries showing the day to day work done and get the signatures of his superiors once in a fortnight	All of these	**Easy**
2	PC1	**Energy Meter installation and connections are being carried out By ?**	Meter Technician	Technical Helper	Supervisor or Junior Engineer	JE or Executive Engr	**Easy**
	PC9	**Single Phase Energy meters of rating 10-60 A are installed for load up to**	5 kW	10 kW	15 kW	20 kW	**Easy**
3	PC9	**Three Phase Energy meters (Whole current or Polyphase) of rating 20-100 A when connected with 4X 25 sq. mm aluminium cable could sustain for load up to**	40 kW	60 kW	80 kW	100 kW	**Medium**
4	PC9	**Three Phase LT CT Energy meters having CT's of 200/5A are sanctioned for consumer having load of**	50 kW	50 to 100 kW	100 to 150 kW	150 to 200 kW	**Medium**

5	PC20	**Periodical Inspection, Testing & Calibration of the energy meters as specified in the present regulations are ?**	For Bulk Supply Meters (HT)- 1 Year LT Meters - 5 years	For Bulk Supply Meters (HT) - 2 Years LT Meters - 5 Years	For Bulk Supply Meters (HT) - 2 Years LT Meters - 7 Years	For Bulk Supply Meters (HT) - 5 Years LT Meters - 5 Years	**Easy**
6	PC9	**Howmany connection terminals are there in Three phase CT (3P3W) and Three Phase CT (3P4W) energy meters meters**	7 and 10	9 and 12	10 and 12	12 and 14	**Tough**
7	PC9	**What is the standard secondary voltage of PT phase to phase?**	100 Volt	110 Volt	150 Volt	200 Volt	**Medium**
8	PC8	**Where should be the location of consumer Meters**	Always at entry point of consumer premises	Inside the consumer premises under lock and key	In separate closed location where assessibility is not possible	All of these	**Easy**
9	PC9	**Howmany seals are fixed on meter terminal cover**	one or two	Three	Five	Not required	**Easy**
10	PC9	**Meter's Sealing Points after manufacturing and test/calibration are placed at**	Meter body and cover	Meter test terminal block	Meter terminal cover & Meter cabinet	At MDI reset terminal	**Easy**
11	PC9	**Accuracy class three phase LT CT energy meters should be**	Class 0.1	Class 0.2	Class 0.5	Class 2	**Medium**
12	PC18	**If the reference Y phase is removed from the 3 phase, 3 wire meter**	Meter will record 50%	Meter will not work	No effect. Meter will record accurately.	Meter will give more reading	**Tough**

13	PC18	**If the reference Neutral is removed from the 3 phase, 4 wire meter**	Meter will record 50%	Meter will not work	No effect. Meter will record accurately.	Meter will give more reading	**Medium**
14	PC9	**What should be the insulation resistance of single Phase energy meter between voltage coil and current coil in megger test**	100 Kilo Ohm	500 Kilo Ohm	1 Mega Ohm	50 Mega Ohm	**Medium**
15	PC9	**Rated LT CT secondary current in energy meter is up to?**	1 ampere	5 ampere	10 ampere	50 ampere	**Easy**
16	PC20	**Polarity of CT's terminals as P_1,P_2, S_1 and S_2 are tested (Checked) with the help of?**	With Megger as IR test	With Galvanometer and a 1.5 Volt DC cell	With multi meter for continuty test	Clip-ON meter for current test	**Tough**
17	PC6	**Minimum clearance from building of low and medium voltage lines and service lines required for vertical and horizontal as per CEA regulations shall be?**	2.5 metre and 1.2 metre	3.5 metre and 1.2 metre	3.5 metre and 1.0 metre	3.7 metre and 1.5 metre	**Medium**
18	PC8	**For installation of 1-ph meter against New Connection / Load Enhancement request from consumer, installation of which electrical equipment by consumer is must for sanctioned load equal to or greater than 5KW.**	MCB	ELCB	ACB	MOCB	**Easy**
19	PC8	**DISCOM's or Utility's distribution line which is terminated up to the consumer's premises is known as?**	Service Line	Distribution Line	Feeder Line	Main Line	**Easy**

20	PC6	**To lay service line across a street minimum Clearance required above ground of the lowest conductor of low and medium voltage (650 V) line shall as per CEA regulation is?**	8 metre	6 metre	5.8 metre	4.8 metre	**Medium**
21	PC15	**State an abnormal wiring condition for Single phase energy meter?**	Earth load	Missing neutral	Mixed neutral	All of these	**Easy**
22	PC14	**State under which condition ELT will glow in Single Phase energy meter**	Earth load	Missing neutral	Mixed neutral	Reverse current	**Easy**
23	PC9	**For 90 kW industrial load which type of energy meter will be installed on LT system**	Three phase whole current electronic meter of rating 20-60 A	Three phase LT CT electronic meter of CTR-60/5A	Three phase LT CT electronic meter of CTR-100/5A	Three phase LT CT electronic meter of CTR-200/5A	**Medium**
24	PC9	**Ratings of CT's and LT CT meters will used for 100 kW sanctioned load is**	100/5A	200/5A	300/5A	400/5A	**Medium**
25	PC11	**Cable size of the Service Line for the sanctioned load of (5-10KW) is**	2 core 10 sq. mm	2 core 25 sq. mm	4 core 10 sq. mm	4 core 25 sq. mm	**Easy**
26	PC14	**State the function of prepaid Single phase energy meter installed at consumer's premises.**	It record energy as per tariff in terms of amount in rupees	It disconnect the supply from its in built relay	It is rechargeable electronically	All of these	**Tough**
27	PC9	**State the name of hand held device used for meter data is collection**	COMMON METER READING INSTRUMENTS (CMRI)	Data recorder (DR)	Meter Reader (MR)	Modem	**Medium**
28	PC26	**Power factor is ratio of**	kW/kVA	kW/kVAR	kVAR/kW	kVAR/kVA	**Easy**

29	PC9	**Active Power kW = √3 X VL X IL X cos ϕ where VL, IL and cos ϕ stands for**	Line Volt	Line current	Power Factor	All of these	**Easy**
30	PC9	**If reactive power (kVAr) drawn by a particular load is zero, it means the load is operating at**	leading power factor	lagging power factor	Unity power factor	None of these	**Medium**
31	PC20	**What are the uses of Digital Multimeter**	To measure the Potential across lines in Volts, Resistance of circuit in Ohms.	To Find value of current up to 1 Amp (1000 mA), Continuity of wiring in circuit.	Frequency in Hertz, Inductive Reactance & Capacitive Reactance.	All of these	**Easy**
32	PC23	**Howmany are the types of consumer energy meters ?**	Single Phase Meter	Three Phase meter (Whole current and LT CT)	HT Meter (With CT and PT)	All of these	**Easy**
33	PC12	**Under balance load condition when current in each phase is same the current in neutral will be?**	Zero	5% of phase current	25% of phase current	50% of phase current	**Easy**
34	PC9	**In consumer bill maximum demand in kVA is calculated on time integral of**	15 minutes	30 minutes	60 minutes	5 minutes	**Medium**
35	PC12	**What do you mean by Load Unbalance**	When difference of current between phase and neutral exceeds 30%, the event will be logged as load unbalance.	When difference of current between phase and neutral exceeds 5% , the event will be logged as load unbalance.	When difference of current between phase and neutral exceeds 10%, the event will be logged as load unbalance.	When difference of current between phase and neutral exceeds 15% , the event will be logged as load unbalance.	**Medium**

36	PC23	**Polyphase whole current meter is always classified as?**	three phase four wire meter	single phase three wire meter	Three phase single wire meter	single phase two wire meter	**Easy**
37	PC9	**A consumer connection for billing purpose are classified according to tariff as**	Industrial	Commercial	Domestic	All of these	**Easy**
38	PC9	**Apparent power kVA is**	√3 X VL X IL X cos ϕ	3 X VP X IP X cos ϕ	√3 X VL X IL X sin ϕ	3 X VP X IP	**Medium**
39	PC8	**When installing meter indoors in the consumer's premises ensure**	Visually traceable" and "joint-free" incoming cable	Clearly visible seals for easy inspection	Ensuring proper height & location for easy readability	All of these	**Easy**
40	PC17	**Monthly Billing of consumption of electricity is based on**	Consumption of Current	Consumption of voltage	Consumption of energy unit in kWh meter reading	Energy meter size	**Easy**
41	PC12	**For LT three phase 3½ 150 sq. mm cable what will be CT ratio**	50/5A	100/5A	150/5A	200/5A	**Medium**
42	PC11	**What is the standard height of meter to maintain for installation?**	Below one metre	One to two metre	Above two metre	At three metre	**Easy**
43	PC8	**In LT 3 phase service line phase to phase voltage at consumer premises should be up to?**	11 kV	1000 V	415 V	650 V	**Easy**
44	PC1	**Consumer Energy meters are installed as per**	Saction load	Consumer load	Network Load	All of these	**Easy**
45	PC9	**Resistance is the?**	property of materials to oppose the flow of electricity	property of materials to flow the electricity	property of materials to generate the electricity	None of these	**Easy**

46	PC9	**The unit of electric current is**	Volt	Ampere	Ohm(Ω)	All of these	**Easy**
47	PC9	**Which Instrument is used to measure Insulation resistance of an energy meter**	Ampere Meter	Volt Meter	Megger	Multi meter	**Easy**
48	PC15	**If there is abnormality in connection and meter is Tampered then**	Meter shall show "FAULT" in the display.	Meter shall show "TAMPER" in the display.	Meter shall show "UNSERVICEABLE" in the display.	Meter shall show "DAMAGE" in the display.	**Easy**
49	PC6	**What is the standard depth of trench prepared to lay LT 3 phase cable from ground including sand bed?**	0.5 metre	0.75 metre	1.0 metre	1.2 metre	**Medium**
50	PC3	**The Potential transformers (PT) have winding connections as?**	Y/Y (Star to Star)	Δ/Y (Delta to Star)	Δ/Δ (Delta to Delta)	None of these	**Tough**
51	PC3	**State which tool is used for making a hole?**	Screw driver	Pipe Wrench	Combination Plier	Drill machine	**Easy**
52	PC3	**Name the Tool use to make punch lugs/sockets/thimbles for terminal connections?**	Plier	Chisel	Hammer	Crimping Tool	**Easy**
53	PC9	**In live LT lines current is measured by instrument?**	Galvano meter	Clamp 'ON' or Tong tester	Multi meter	Megger	**Easy**
54	PC10	**Who can avail PTW to work in a electrical job?**	Authorized person nominated by DISCOM/Utility.	Any Asst. Manager or Assistant Engineer	Any Officer	Any Supervisor	**Medium**
55	PC9	**Base current (Ib) of single phase energy meter of 10 – 60 A is?**	1 Ampere	5 Ampere	10 Ampere	20 Ampere	**Medium**

56	PC9	**The Imax (Maximum current) of whole current three phase meter (10 – 60 A) is taken as?**	10 Ampere	40 Ampere	60 Ampere	80 Ampere	**Easy**
57	PC6	**Standard voltage of LT AC Single phase supply between phase and neutral is required as**	220 V	230 V	240 V	250 V	**Medium**
58	PC8	**Standard declared frequency of Alternating Current (AC) supply is required as**	47.5 Hz	49.5 Hz	50 Hz	51 Hz	**Easy**
59	PC9	**State the multiply factor to record correct energy consumption if energy meter of 200/5 A is connected with CTs of ratio 100/5 A.**	Reading X 1/2	Reading X 1	Reading X 2	Reading X 1/4	**Tough**
60	PC8	**As per Regulatory Electricity supply code and performance standard regulations. If supply of domestic consumers fail in urban area the same should be restored within**	48 hrs	24 hrs	12 hrs	6 hrs	**Easy**

PSS/N 2001 : Use of Basic Health & Safety Practices for Power related work

S No	Performance Criteria (PC)	Question	Option- A	Option- B	Option- C	Option- D	Complexity
1	PC5	**what Precautions to be taken while working on live line?**	Line clear permit is taken from authorities	Circuit is in off condition	Equipment / Line is properly earthed	All of these	**Easy**

2	PC1	**Rubber mats are placed in front of electric panel for:**	Electric safety during operation	Workplace decoration	To avoid injury due to fall	To avoid slippage	**Easy**
3	PC7	**what is the first requirement to take up work on the live line?**	PTW for shut down	Tools and tackles	Ladder	Safety sign board	**Medium**
4	PC5	**CAUTION ORDER TAG is always used in conjunction with a PTW?**	To ensure line is clear dead from all source	Earth chain on line is provided	HT line is dead and earth from isolator	All of these	**Medium**
5	PC12	**What is process after getting the shutdown of a equipment / line?**	Switch off incoming line	test the same by neon tester	should be earthed after discharge rod	All of these	**Easy**
6	PC5	**How to avoid Electrical accidents ?**	Use Guards or Barriers & Replace covers	Unused openings in cabinets, boxes and fittings must be closed (no missing knockouts)	Junction boxes, Pull boxes and fittings must have approved covers	All of these	**Easy**
7	PC4	**why we used the hand gloves during work on the live lines?**	For firm grip of hand tools	For safety from electric shock	So that hands remain clean from dust	All of these	**Easy**
8	PC4	**General Causes of Accidents are**	Working without authority.	Use of improper T & P ie; using Pliers instead of Screw-Driver or Spanner, not using insulated Pliers or screw - driver etc.	Non-use of safety equipments and T & P like - ladder, Zola, waist belt /rope, hand gloves, D.O. operating rod, Earthing rod, etc.	All of these	**Easy**
9	PC4	**General Causes of Accidents are**	Doing work in an unsafe way, such as throwing T & P/ line material or doing hasty work	Working in insufficient light	Using higher capacity fuse or by passing the fuse	All of these	**Easy**
10	PC27	**Severity of the electrical shock on the human body depends on**	Path of current through the body	Amount of current flowing through the body (amps)	Duration of the shocking current through the body	All of these	**Medium**

11	PC4	**The responsibility of Consumer Meter Technician towards safety is**	To act so as to provide Protection to the public	To act so as to provide Safety to your fellow employees	To provide safety to self	All of these	**Easy**
12	PC4	**The responsibility of Safety of Consumer Meter is with**	Job knowledge	Safety of equipments	Safety of self and safety of others	All of these	**Easy**
13	PC2	**SAFETY - Means**	S- Spreading safety awareness everywhere, A-Avoiding accidents	F- Free your job from hazards. E- Exercise care & caution at work place.	T- Think before doing anything, Y-You & You only can promote safety	All of these	**Easy**
14	PC5	**Fundamental knowledge that any power worker should Know**	Authorization to work on power equipment and Line clear approach	EARTHING arrangement, Earth rods are to be withdrawn before returning line clear	Deployment of proper tools	All of these	**Easy**
15	PC12	**Why do people work in an Unsafe manner?**	Lack of Knowledge & Job Dissatisfaction	Improper Motivation & Personal Problem	Over Confidence.	All of these	**Easy**
16	PC8	**what is Discharge Rod?**	A insulated rod having hook at on side connected with earth lead	A bamboo of 8 feet having arrow on one side	A rod having wet cloth to cool down the hot spot	A neon sign rod which indicate and beep when put close to live line	**Medium**
17	PC8	**what is the function of discharge rod?**	The discharge rod is used to discharge the static & induction charge to earth	The discharge rod is used for cutting the branches of tree touching the HT line	The discharge rod is used for removing the birds nest, kites from live line	The discharge rod is used to hook the jumpers for connections in over head lines	**Medium**

18	PC4	**What are Unsafe conditions?**	Inadequate guards, wearing Loose dress like Dhoti, Kurta, Pyjama and Slipper (Chappals)	Lack of earth connection while working on Electrical systems, Defective tools, equipment or supplies	Poor housekeeping	All of these	**Easy**
19	PC7	**what are the PPE's (personal protective equipments) should be used during O/H electrical work?**	safety helmets with shield or spectacles	safety gloves and shoes	safety belt with full body harness	All of these	**Easy**
20	PC20	**Gloves are made of rubber because:**	Rubber is elastic	Rubber is durable	Rubber is cheaper	Rubber is an insulator	**Easy**
21	PC7	**which safety tool required for working on heights?**	Safety Belt	Zola & rope	Ladder	All of these	**Easy**
22	PC7	**Portable ladders are normally made of**	Wood	Aluminium	Fibreglass	All of these	**Easy**
23	PC7	**The ladder is placed at an angle from ground to inclined vertical plane at?**	90^o	75^o	60^o	45^o	**Tough**
24	PC20	**W tes?** 	Broken arrows likely	Danger: High Volt electricity	Take a sharp left, then a sharp right	Accident prone area	**Easy**
25	PC20	**W... ...tes?**	Danger cause fatal	Caution	No Entry	Electric crematorium	**Medium**
26		**What ...ealth and safty ...licable in a work place?** 	Individuals should be physically fit	Mentally alert	Not suffering from any serious ailment	All of these	**Easy**
27		**Importance of working in clean and safe environment practices & procudures are emphasized during**	The induction training	Working in a Electricity Distribution Company	Public meetings	A & B correct	**Easy**
28	PC20	**What doe ...cates?** 	Drinking Water	Fire Extinguisher	First Aid	Danger	**Easy**

29	PC23	**what is fire?**	Combination of Fuel, Heat and Air	Combination of oil and water	Combination of water and air	None of these	**Easy**
30	PC4	**Hazards due to short circuits may result from:**	Too many devices plugged into a circuit,causing heated wires and possibly a fire	Wire insulation melting, which may cause arcing and a fire in the area where the overload exists,even inside a wall	Lack of over current protection	All of these	**Easy**
31	PC19	**What are the classes of fire ?**	Class A: wood, paper, cloth, trash, plastics- solids that are not metals Class B: Flammable liquids- gasoline, oil, grease, acetone. Includes flammable gases.	Class C: flammable gas & live electrical equipment- LPG, Natural Gas, Methane etc, & fire on electrical equipment, Class D: Metal- potassium, sodium, aluminium, magnesium and A, B & C	Class E: Electrical equipments, wiring, Electrical panel that initiated the fire is no longer receiving electricity	All of these	**Medium**
32	PC23	**Most common types of fire extinguishers are**	Dry Chemical (ABC, BC, DC)	Carbon Dioxide (CO2)	Mechanical Foam type and full of sand buckets and water	All of these	**Medium**
33	PC33	**Easy method of Artificial Respiration is**	Sylvester's method	Schaffer's method	Mouth to Mouth Resuscitations Method	None of the above	**Medium**
34	PC28	**The First-aid-box should have**	All type of dressing cotton / Patty.	Clean and sterilized cotton pads & Tincture - iodine.	Eye drops , Boric Powder	All of these	**Easy**
35	PC4	**How much Clearance required in a street between ground and lowest overhead conductor for 650 volt?**	5.8 meter	7 metre	10 metre	15 metre	**Tough**

36	PC19	**General precautions to be followed by employees for good house keeping such as:**	Tools and materials shall not be placed where they may cause tripping or stumbling hazards or where they may fall and strike any person below	Spilt oil and chemicals shall be cleaned up immediately.	Dirty and oily waste and rags, broken bulbs & glass shall be deposited in an approved metal container and disposed off as soon as practicable	All of these	**Easy**
37	PC35	**In case of any accident (fatal or non fatal) the detailed report is submitted to**	Electrical Inspector of area within 24 hrs.	JE of the section within 24 hrs.	Electrical Inspector of area within 12 hrs.	Co-worker of the work site within 24 hrs.	**Medium**
38	PC4	**When the 650 V line passes adjacent to the building a horizontal clearance should be**	3.2 metres from the nearest point of the building	1.2 metres from the nearest point of the building	4.2 metres from the nearest point of the building	5.2 metres from the nearest point of the building	**Medium**
39	PC27	**Severity of the electrical shock depends on**	Path of current through the body	Amount of current flowing through the body (amps)	Duration of the shocking current through the body,	All of these	**Medium**
40	PC8	**what is the use of a Chain in over head lines?**	Used to give tools and accessories by ground staff to lineman	Cordon the area for traffic diversion	Use to short circuit the over head line to earth to avoid back feed of supply	For connecting the separate over head lines	**Medium**

PSS/ N 1336 : Work Effectively with Others

S No	Performance Criteria (PC)	Question	Option A	Option B	Option C	Option D	Complexity
1	PC3	**Your one of colleague gets badly injured at site. What will you do after first aid?**	Immediately bring him to nearby hospital	Report the matter to seniors	Pass on the information to all colleagues	All of these	**Easy**
2	PC8	**Your one of colleague has pronounced by public on an unethical act. What will you do?**	Report the matter to your seniors	Call your colleagues to fight with public	Try to settle the matter with public	Warn the public for dire consequence	**Medium**
3	PC10	**Why would you need good Listening skills**	Ability to listen well allows you to understand your daily tasks	Good listener helps to build good relation with all staffs and supervisor	Good listening skills are a key ingredient for building good team spirit	All of these	**Easy**
4	PC1	**Customer Service Standards are:**	Listen to the Customer,	Communicate effectively, Resolve issues & problems	Inform & Acknowledge	All of these	**Easy**
5	PC9	**The supply of consumers fail, the same is restored within time as per supply code and performance standard regulations. Now what will you do when consumer offer you some sort of obligation?**	Accept the obligation and keep it	Accept the obligation and share with your supervisor	Show etiquette behaviour and say no to accept bribe	Disconnect the consumer line and report to supervisor	**Tough**
6	PC4	**What are the Duties and Responsibilities of Consumer Meter Technician working in a Power Distribution Company ?**	He shall be responsible to ensure that the code of safety rules is followed by him and his colleagues	He shall associate with meter testing Schedules, after completing the testing of each connection hand over the report to his superiors.	He shall maintain diaries showing the day to day work done and get the signatures of his superiors	All of these	**Easy**

					once in a fortnight.		
7	PC5	**How to succeed in team work ?**	Recognize Your Role	Take Ownership of the Team Goals	Earn Trust, Communicate Openly & Be Flexible with Others	All of these	**Medium**
8	PC9	**Characteristics of disciplined behaviour are**	Be Punctual	Maintain work standards	Right attitude towards work	All of these	**Medium**
9	PC10	**Grievances can be handled through**	Acknowledging Grievance	Gathering facts	Quick & Timely Action	All of these	**Easy**
10	PC10	**Which of the following are benefits of having a Positive Attitude?**	Lower Stress	Increased Energy and Enthusiasm	Less enxiety & increased emotional well being	All of these	**Medium**

Ace Assessments

Viva (Consumer Energy Meter Technician) Total Question - 10

(Answering of each steps in sequence carry equal marks with total 4 viva in each question)

Job role energisation of new connection from overhead or underground Line

Shut down procedures

Step 1: Shutdown availed from competent authority and PTW issued

Step 2: Safety Zone is created. First supply is isolated from both sides of line then it is tested by Neon tester and then discharged through discharge rod. After that chains are placed over to ensure lines are short and earth.

Step 3: Metering team is allowed to work after confirmation that they are equipped with safety equipments.

Step 4: Service line connections are done.

Step 5: Clearance given by metering team all the shorts are removed and all the members are kept away from the site and counted.

Step 6: Clearance is given and supply of that area is made normal.

Stating of aforesaid steps is mandatory for all participants

Question No.1

a. What is the height of service line across street
b. What is the height of service line along a street
c. What is the height of service line when erected elsewhere than along or across street if bare
d. What is the height of service line when erected elsewhere than along or across street if insulated

Question No. 2

a. How many terminals are there in 3Phase 4 Wire meter having 3 CTs
b. How many terminals are there in 3Phase 4 Wire meter having 4 CTs
c. How many terminals are there in 3Phase 3 Wire meter having 2 CTs
d. How many terminals are there in 3Phase 4 Wire Whole current meter
e. How many terminals are there in Single Phase 2 Wire meter

Question No.3

a. How much earth resistance required at meter box
b. Why earth connection is at zero potential
c. All equipments and accessories are connected with earth why
d. What is the depth of earth pit

Question No.4

a. How you will differentiate HT and LT ABC in overhead system *(HT has three insulated and LT has 4 or 5 insulated cables)*
b. What is function of messenger wire in ABC *(It act both as neutral and earth)*
c. What specific precaution is taken on ABC line *(Every third pole is made earth to keep good earth)*
d. How service line is connected through LT ABC *(Through IPC)*

Question No.5

a. Where you will install a new meter at consumer premises *(At entry point in open, easily assessable and viewed protected from weather condition)*
b. At what height meter should be install *(At 1 to 2 meter easily readable)*
c. What should be the height of service line at consumer premises *(4 metre)*

d. What should be height of service line if it is passing over vehicular road *(6 metre)*

Question No.6

a. State the accuracy class of single phase meter used in domestic residential area *(1 or 2)*
b. State the accuracy class of Three phase whole current meter used in commercial area *(0.5 or 1)*
c. State the accuracy class of LT CT 3 phase meter used in industrial area *(0.5)*
d. State the accuracy class of 33 kV HT meter installed in Grid station *(0.2)*

Question No.7

a. **How many lines are laid in LT distribution have street light and state their name** *(Total six, 3phase, 1street light, 1neutral and 1earth)*
b. **Why rating of neutral conductor is less than phase conductor** *(Under balance load neutral current is zero thus under mixed unbalance load it remain around half of phase current)*
c. **What is the function of two-line cross arm in LT overhead** *(It is used to support the guard wires below the conductor also support the lineman to stand on it while attending complaint to check and repair the lines)*
d. **State the function of guard wire** *(For safety in case of live conductor snapped it touches guard wire before falling on the ground thus supply trip. Guard wire are connected with earth and at distance of one meter from pole across the line)*

Question No.8

a. How many seals are fixed in single phase meter *(Minimum 6, 2 on meter body, 2 on terminal cover and 2 on box)*
a. How In routine test of an energy meter what is standard value for
b. many seals are fixed in Polyphase meter *(Minimum 8, 3 on meter body, 1 on MDI, 2 on terminal cover and 2 on meter box)*
c. How many seals are fixed in LT CT meter *(Minimum 10, 3 on meter body, 1 on MDI, 2 on terminal cover, 2 on CT box and 2 on meter box chamber)*
d. How many seals are fixed in HT pole mount meter *(Minimum 18, 3 on meter body, 1 on MDI, 2 on terminal cover, 2 on meter box chamber, 4 on stand pipe and 6 on CT-PT unit)*

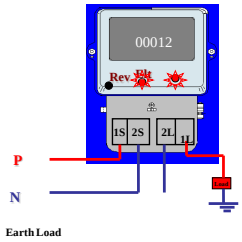
Question No.9

a. In routine test of an energy meter what is standard for No load test *(115% of reference volt)*
b. In routine test of an energy meter what is standard value for AC volt withstand test (*2 kV)*
c. In routine test of an energy meter what is standard value for Starting current test *(0.4% or 0.1% of basic current)*
d. In routine test of an energy meter what is standard value for Insulation resistance *(5 M ohm and 50 M ohm)*

Question No.10

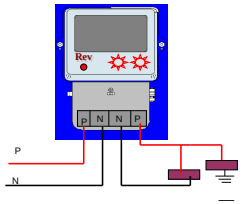
a. Draw the abnormal wiring condition of earth load, what meter display and affect on recording

Earth Load



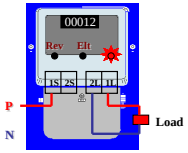
b. Draw the abnormal wiring condition of Partial earth load, what meter display and affect on recording

Partial Earth Load



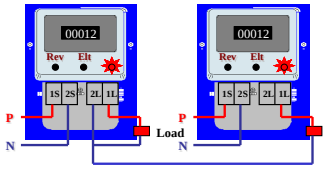
c. Draw the abnormal wiring condition of missing neutral, what meter display and affect on recording

Missing Neutral



d. Draw the abnormal wiring condition of Mixed Neutral, what meter display and affect on recording

Mixed Neutral



Ace Assessments

Practical Test of Consumer Energy Meter Technician

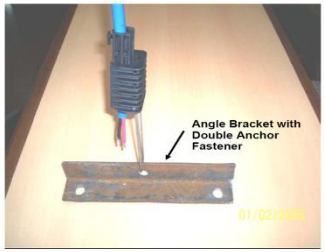
Total Question -5, Time of Execution of each assignment –15 to 30 minutes

Question No. 1

Job role installation of single phase energy meter through overhead system

Material required

1. Energy Meter Single phase
2. Meter box
3. Armored cable 2X10 Sq. mm or 2X 25 Sq. mm
4. Cable glands
5. Jubilee clips
6. Clamps or saddles, Fastener, bolts, Lugs
7. DP main switch, MCB board, ELCB
8. MS slotted, bracket angle grouted on wall at 4 metre height,



Electrical Tools: Plier, Screwdrivers, Drill m/c, Hammer, Crimping tool, Tester, Test lamp, Cutter, Spanner and Tool kit.

Safety Tools & PPE's: Helmet, Gloves, Danger signboard, safety belt, Safety signboard, safety boot, Tagging, Rubber mat, Mask, Spectacle, Rope, Series test lamp, Ladder

<u>Procedure how to install energy meter, connections and energisation</u>

Each participant will identify all the aforesaid items

Carry following job within stipulated period with a group of two candidates

1. Grout the meter box on wall at 2 metre height using drill m/c and fastener
2. Fit the energy meter in meter box with all three screws

3. Insert the cable in meter box with cable glands duly cable ends prepared for termination
4. Tightening of glands, jubilee clips and earth connection on box and meter body
5. Crimping of lugs and meter connections both incoming and outgoing terminals
6. Outgoing lead connected to consumer's ELCB/MCB/DP main switch
7. Incoming cable (Service line) properly clamp with saddles up to bracket
8. Fit service cable anchor
9. Energise consumer supply with consumer's main 'OFF'
10. Test supply available on meter terminals
11. Test energy meter on load by switching 'ON' consumer's main
12. Seal energy meter terminal block and meter box door

Question No. 2

Job role installation of single phase energy meter through Bus-Bar box (Loop connection)

Material required

Same as above connection from Bus-Bar box in place of item No.8 MS angle bracket

Single Phase 2 way Bus Bar

Three phase 3 way Bus Bar

Three phase 8 way Bus Bar

Procedure how to install energy meter, connections and energisation

Each participant will identify all the aforesaid items

Carry following job within stipulated period with a group of two candidates

1. Grout the meter box on wall at 2 metre height using drill m/c and fastener
2. Fit the energy meter in meter box with all three screws

3. Insert the cable in meter box with cable glands duly cable ends prepared for termination
4. Tightening of glands, jubilee clips and earth connection on box and meter body
5. Crimping of lugs and meter connections both incoming and outgoing terminals
6. Outgoing lead connected to consumer's ELCB/MCB/DP main switch
7. Incoming cable (Service line) properly clamp with saddles up to bracket
8. Insert the cable in meter box with cable glands duly cable ends prepared for termination
9. Get the PTW of Service pillar or feeder pillar from where Bus Bar is energised
10. Switch 'OFF' supply. Place 'Do not operate tag' at incoming main
11. Ensure supply is dead at Bus Bar by series test lamp
12. Insert the cable in Bus Bar box with cable glands duly cable ends prepared for termination with sockets
13. Tightening of glands, jubilee clips and earth connection on Bus Bar box
14. Energise consumer supply with consumer's main 'OFF'
15. Test supply available on meter terminals
16. Test energy meter on load by switching 'ON' consumer's main
17. Seal Bus Bar cover and energy meter terminal block and meter box door

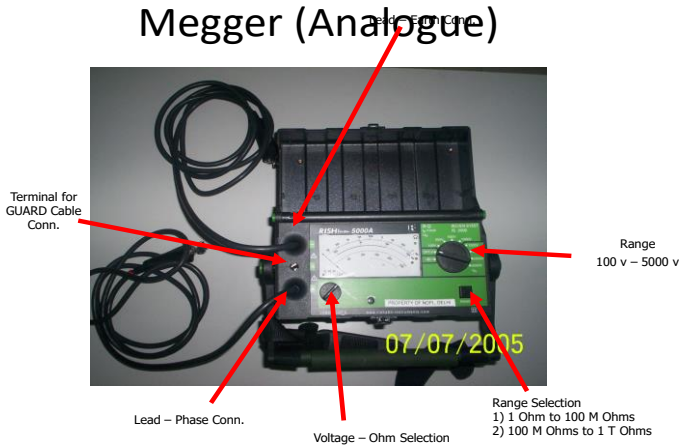
Question No. 3

Insulation Resistance Measurement of Single phase energy meter

Material required

1 Insulation Megger
2 Single phase energy meter

Megger (Analogue)



Participant is asked to Test of the ohmic resistance

a) Between frame & current, voltage circuits connected together: Required results 5 Mega Ohm

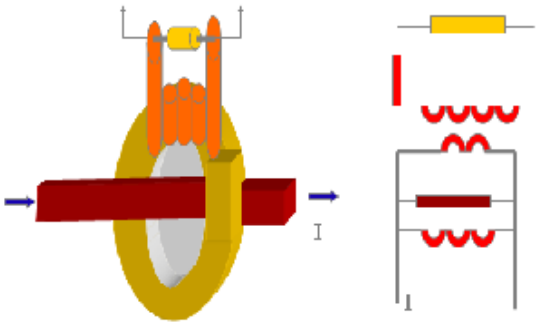
b) Between each current (and voltage circuit) & each and every other circuit: Required results 50 Mega Ohm

Question No. 4

Job role : Polarity test of LT CT's

Material required

1. LT CT's any rating from 100/5A to 400/5A
2. 1.5 Volt DC cell
3. Galvanometer or Multimeter
4. Two Flexible chords
5. Single core cable 10 sq. mm – one metre



Each participant will demonstrate the testing procedure and identify the Polarity of CT's terminals as P_1, P_2, S_1 and S_2 with the help of Multimeter or Galvanometer and DC 1.5 Volt battery

Secondary terminals are connected on +ve & -ve terminals of galvanometer (or Multimeter DC terminals for current or Volt) With the help of 1.5 Volt battery pulse DC current is injected on the inserted line through CT where P_1 and P_2 are marked and S_1 and S_2 are identified according to direction of pointer.

Question No. 5

Job role : Installation of LT CT Energy meter with box and making connection

Material required

1. LT CT energy meter Any rating (3X-/5A, 3X40 Volt)
2. Set of ring type LT CT (3) any rating from 100 to 400A having secondary leads of 1.5 Metres
3. Double door LT CT meter box
4. 4X50 sq. mm PVC cable 3 metre
5. 2.5 or 4 sq. mm flexible wire – 10 metres (2.5 metre four pieces)

Participant will install the meter and make the meter connections by inserting each CT single core cable and prepare potential terminals.

LT CT meter connection diagram