

S. No.	Item Description	Unit	Qty.
F.	Testing & Maintenance Equipment for GIS		
1	SF6 Gas Filling, Evacuating, Filtering, Drying, Pumping & storage Plant with spares for five years operation (including gas sections of bus-bar and all associated equipments) (Any reputed make)	Set	1
2	Partial Discharge Monitoring System (UHF Type) (Dobble make or equivalent)	Set	3
3	SF6 Moisture Content (Dew Point) meter (any reputed make)	Set	1
4	Contact resistance meter (any reputed make)	Set	1
5	Circuit breaker operational analyzer (any reputed make)	Set	1
6	SF6 gas leakage detector (any reputed make)	Set	2
7	Digital Manometer (any reputed make)	Nos.	2
8	Micro gas Analyzer (any reputed make)	Set	2
9	Gas masks (any reputed make)	Nos.	10
V	Tools and Plants		
1.1	On-line Dissolve Gas Analysis based on Spectrometer principle (DGA) & Moisture meter (Any reputed make)	No.	3
1.2	On-line insulating oil drying system (cartridge type)	No.	1
1.3	Digital insulation tester (5KV) with voltage control switch (Specially provision for measurement of P.I) (Megger or equivalent make)	No.	1
1.4	Earth resistance tester (4 terminal digital type with data storage and retrieval) (Megger or equivalent make)	No.	1
1.5	Automatic testing kit for BDV measurement of T/F oil (Megger or equivalent make)	No.	1
1.6	T/F turn ratio meter (Digital) with provision of data storage and retrieval (Megger or equivalent make)	No.	1
1.7	Transformer Winding Resistance winding resistance measurement meter (Any reputed make)	No.	1
1.8	Tan Delta/ Capacitance measurement test kit (Megger or equivalent make)	No.	1
1.9	Earthfault Detection Meter	No.	1
1.10	Stand-alone Sweep Frequency Response Analyser (SFRA) Test Kit	No.	1
1.11	Ground Grid Test Set	No.	1
1.12	CT/PT Analyser with Hysteresis Current Measurement	No.	1
1.13	Partial Discharge Detector with 5 type of sensing technologies	No.	1
1.14	Clampon Earth Tester	No.	1
1.15	Primary Injection kit	No.	1
1.16	Thermal Imager Camera (640x480 px) SATIR /FLIR make	No.	1
1.17	Corona camera OFIL	No.	1
Breakup of Mandatory Spares			
A.	Spare for 400/220/132kV GIS		
1	General		
1.1	SF6 Gas Pressure Relief Devices, 3 Nos. of each type	Set	2
1.2	SF6 Pressure gauge with coupling device cum switch or density monitors and pressure switch as applicable (1 no. of each type)	Set	1
1.3	Coupling device for pressure gauge cum switch for connecting Gas handling plant	Set	2
1.4	Rubber Gaskets, "O" Rings and Seals for SF6 gas of each type	Set	1
1.5	Molecular filter for SF6 gas with filter bags (20% of total weight)	Set	1
1.6	All types of Control Valves for SF6 gas of each type	Set	2
1.7	SF6 gas (20 % of total gas)	LS	1
1.8	All types of coupling for SF6 gas (1 no. of each type)	Set	1
1.9	Pipe length (Copper or Steel as applicable) for SF6 Circuit of each type	Set	1
1.1	Density Monitors for SF6 gas	No.	1
1.11	Enclosures, Insulators & main circuit to replace on each phase, any compartment of Busbar or bay	Set	1

1.12	Covers with all accessories necessary to close a compartment in case of dismantling of any part of the Enclosure to ensure the sealing of this compartment		
1.12.1	For 3 phase enclosure if applicable	Nos.	2
1.12.2	For 1 phase enclosure if applicable	Nos.	3
1.13	Locking device to keep the Dis-connectors (Isolators) and Earthing switches in close or open position in case of removal of the driving Mechanism	Set	1
1.14	Bus support Insulator of each type for single phase/ 3 phase enclosure (5% of population)	No.	1
1.15	SF6 to air bushing (400/220/132kV) of each type & rating	Set	1
1.16	Spares for Local control cabinet including MCB, fuses, timers, Aux Relay of each type & rating terminal of each type	Set	1
1.17	Bushing for Dielectric test on Cable	No.	1
1.18	T&P for bushing erection including ladder/ platform for Bushing erection and subsequently during O&M for Transformer	No.	1
1.19	Cable Termination Enclosure	Set	1
2	Circuit Breakers		
2.1	400 kV Circuit Breaker		
a)	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit, enclosure and Marshalling Box with operating mechanism	Set	3
b)	Fixed, moving and arcing contacts including insulating nozzles 3 nos. of each type	Set	1
c)	Rubber gaskets, 'O' rings and seals for SF6 gas of each type	Set	1
d)	Trip coil assembly with resistor as applicable, 3 nos. of each type	Set	2
e)	Closing coil assembly with resistor as applicable, 3 nos. of each type	Set	2
f)	Molecular filter for SF6 gas with filter bags (10% of total quantity used)	LS	1
g)	SF6 Pressure gauge cum switch or Density monitors and pressure switch as applicable, 3 nos each type	Set	1
h)	Coupling device for pressure gauge cum switch for connecting Gas handling plant, 3 nos. of each type	Set	1
i)	Relays, Power contactors, push buttons, timers & MCBs etc of each type & rating	Set	1
j)	Closing assembly/ valve, 3 nos. of each type	Set	2
k)	Trip assembly/ valve, 3 nos. of each type	Set	2
l)	Aux. switch assembly, 3 nos. of each type	Set	1
m)	Operation Counter, 3 nos. of each type	Set	1
n)	Rupture disc, 3 nos. of each type	Set	1
o)	Windoscope / Observing window, 3 nos. of each type	Set	1
p)	Spring operating closing mechanism one no of each type, if applicable	Set	1
q)	Hydraulic operating mechanism, if applicable		
i)	Hydraulic operating mechanism with drive motor , 3 nos of each type if applicable	Set	1
ii)	Ferrules, joints and couplings, 3 nos. of each type	Set	1
iii)	Hydraulic filter, 3 nos. of each type	Set	1
iv)	Hose pipe, 3 nos. of each type	Set	1
v)	N2 Accumulator, 3 nos. of each type	Set	1
vi)	Pressure transducer, 3 nos. of each type	Set	1
vii)	Valves 3 nos. of each type	Set	1
viii)	Pipe length (copper & steel) 3 nos. of each size & type	Set	1
ix)	Pressure switches 3 nos. of each type	Set	1
x)	Pressure gauge with coupling device, 3 nos. of each type	Set	1
xi)	Hydraulic oil (20% of total qty. used)	Set	1
xii)	Pressure Relief Device, 3 nos. of each type	Set	2

2.2	220 kV Circuit Breaker		
a)	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit, enclosure and Marshalling Box with operating mechanism	Set	3
b)	Fixed, moving and arcing contacts including insulating nozzles 3 nos. of each type	Set	1
c)	Rubber gaskets, 'O' rings and seals for SF6 gas of each type	Set	1
d)	Trip coil assembly with resistor as applicable, 3 nos. of each type	Set	2
e)	Closing coil assembly with resistor as applicable, 3 nos. of each type	Set	2
f)	Molecular filter for SF6 gas with filter bags(10% of total quantity used)	LS	1
g)	SF6 Pressure gauge cum switch or Density monitors and pressure switch as applicable, 3 nos each type	Set	1
h)	Coupling device for pressure gauge cum switch for connecting Gas handling plant, 3 nos. of each type	Set	1
i)	Relays, Power contactors, push buttons, timers & MCBs etc of each type & rating	Set	1
j)	Closing assembly/ valve, 3 nos. of each type	Set	2
k)	Trip assembly/ valve, 3 nos. of each type	Set	2
l)	Aux. switch assembly, 3 nos. of each type	Set	1
m)	Operation Counter, 3 nos. of each type	Set	1
n)	Rupture disc, 3 nos. of each type	Set	1
o)	Windoscope / Observing window, 3 nos. of each type	Set	1
p)	Spring operating closing mechanism one no of each type, if applicable	Set	1

q)	Hydraulic operating mechanism, if applicable		
i)	Hydraulic operating mechanism with drive motor , 3 nos of each type if applicable	Set	1
ii)	Ferrules, joints and couplings, 3 nos. of each type	Set	1
iii)	Hydraulic filter, 3 nos. of each type	Set	1
iv)	Hose pipe, 3 nos. of each type	Set	1
v)	N2 Accumulator, 3 nos. of each type	Set	1
vi)	Pressure transducer, 3 nos. of each type	Set	1
vii)	Valves 3 nos. of each type	Set	1
viii)	Pipe length (copper & steel) 3 nos. of each size & type	Set	1
ix)	Pressure switches 3 nos. of each type	Set	1
x)	Pressure gauge with coupling device, 3 nos. of each type	Set	1
xi)	Hydraulic oil (20% of total qty. used)	Set	1
xii)	Pressure Relief Device, 3 nos. of each type	Set	2
2.3	132 kV Circuit Breaker		
a)	Complete Circuit Breaker pole of each type & rating complete with interrupter, main circuit, enclosure and Marshalling Box with operating mechanism	Set	3
b)	Fixed, moving and arcing contacts including insulating nozzles 3 nos. of each type	Set	1
c)	Rubber gaskets, 'O' rings and seals for SF6 gas of each type	Set	1
d)	Trip coil assembly with resistor as applicable, 3 nos. of each type	Set	2
e)	Closing coil assembly with resistor as applicable, 3 nos. of each type	Set	2
f)	Molecular filter for SF6 gas with filter bags (10% of total quantity used)	LS	1
g)	SF6 Pressure gauge cum switch or Density monitors and pressure switch as applicable, 3 nos each type	Set	1
h)	Coupling device for pressure gauge cum switch for connecting Gas handling plant, 3 nos. of each type	Set	1
i)	Relays, Power contactors, push buttons, timers & MCBs etc of each type & rating	Set	1
j)	Closing assembly/ valve, 3 nos. of each type	Set	2
k)	Trip assembly/ valve, 3 nos. of each type	Set	2
l)	Aux. switch assembly, 3 nos. of each type	Set	1
m)	Operation Counter, 3 nos. of each type	Set	1
n)	Rupture disc, 3 nos. of each type	Set	1
o)	Windoscope / Observing window, 3 nos. of each type	Set	1
p)	Spring operating closing mechanism one no of each type, if applicable	Set	1
q)	Hydraulic operating mechanism, if applicable		
i)	Hydraulic operating mechanism with drive motor , 3 nos of each type if applicable	Set	1
ii)	Ferrules, joints and couplings, 3 nos. of each type	Set	1
iii)	Hydraulic filter, 3 nos. of each type	Set	1
iv)	Hose pipe, 3 nos. of each type	Set	1
v)	N2 Accumulator, 3 nos. of each type	Set	1
vi)	Pressure transducer, 3 nos. of each type	Set	1
vii)	Valves 3 nos. of each type	Set	1
viii)	Pipe length (copper & steel) 3 nos. of each size & type	Set	1
ix)	Pressure switches 3 nos. of each type	Set	1
x)	Pressure gauge with coupling device, 3 nos. of each type	Set	1
xi)	Hydraulic oil (20% of total qty. used)	Set	1
xii)	Pressure Relief Device, 3 nos. of each type	Set	2

3	Isolators		
3.1	400 kV Isolators		
a)	Complete set of 3 nos. of single phase / one no. of 3-phase dis-connector including main circuit, enclosure, driving mechanism	Set	1
b)	Single Phase/Three Phase High speed fault making grounding switch operating mechanism complete with all necessary gaskets mounting hardware/operating mechanism complete with all necessary gaskets connecting apparatus.	Set	1
c)	3 no. of single phase / one no of 3-phase Earthing switch including main circuit, enclosure, driving mechanism	Set	1
d)	Copper contact fingers for dis-connector male & female contact –for one complete (3 phase) dis-connector of each type and rating	Set	1
e)	Copper contact fingers for earthing switch male & female contacts- for one complete (3 phase) earthing switch of each type and rating	Set	1
f)	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch of each type and rating	Set	1
g)	Push button switch. each type, as applicable	Set	1
h)	Limit switches and Aux. Switches for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
i)	Rotor housing bearing assembly for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
j)	Motor with gear assembly for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
k)	Corona shield rings as applicable	Set	2
l)	Hinge pins for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
m)	Bearings for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
n)	Interlocking coil with resistors, timers, key interlock for complete 3 phase equipment (each type and rating)	Set	1
o)	Relays, Power contactors, resistors, fuses, push buttons, timers & MCBs (complete for one 3 phase equipment)		
i)	For isolator	Set	3
ii)	For earth switch	Set	1
p)	Aux. switch assembly (complete) with 10 NO & 10 NC or more contacts for both isolator & earth switch	Set	1
3.2	220 kV Isolators		
a)	Complete set of 3 nos. of single phase / one no. of 3-phase dis-connector including main circuit, enclosure, driving mechanism	Set	1
b)	Single Phase/Three Phase High speed fault making grounding switch operating mechanism complete with all necessary gaskets mounting hardware/operating mechanism complete with all necessary gaskets connecting apparatus.	Set	1
c)	3 no. of single phase / one no of 3-phase Earthing switch including main circuit, enclosure, driving mechanism	Set	1
d)	Copper contact fingers for dis-connector male & female contact –for one complete (3 phase) dis-connector of each type and rating	Set	1
e)	Copper contact fingers for earthing switch male & female contacts- for one complete (3 phase) earthing switch of each type and rating	Set	1
f)	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch of each type and rating	Set	1
g)	Push button switch. each type, as applicable	Set	1

h)	Limit switches and Aux. Switches for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
i)	Rotor housing bearing assembly for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
j)	Motor with gear assembly for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
k)	Corona shield rings as applicable	Set	1
l)	Hinge pins for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
m)	Bearings for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
n)	Interlocking coil with resistors, timers, key interlock for complete 3 phase equipment (each type and rating)	Set	1
o)	Relays, Power contactors, resistors, fuses, push buttons, timers & MCBs (complete for one 3 phase equipment)		
i)	For isolator	Set	3
ii)	For earth switch	Set	1
p)	Aux. switch assembly (complete) with 10 NO & 10 NC or more contacts for both isolator & earth switch	Set	1
3.3	132 kV Isolators		
a)	Complete set of 3 nos. of single phase / one no. of 3-phase dis-connector including main circuit, enclosure, driving mechanism	Set	1
b)	Single Phase/Three Phase High speed fault making grounding switch operating mechanism complete with all necessary gaskets mounting hardware/operating mechanism complete with all necessary gaskets connecting apparatus.	Set	1
c)	3 no. of single phase / one no of 3-phase Earthing switch including main circuit, enclosure, driving mechanism	Set	1
d)	Copper contact fingers for dis-connector male & female contact –for one complete (3 phase) dis-connector of each type and rating	Set	1
e)	Copper contact fingers for earthing switch male & female contacts- for one complete (3 phase) earthing switch of each type and rating	Set	1
f)	Open / Close contactor assembly, timers, key interlock for one complete (3 phase) dis-connector and (3 phase) earthing switch of each type and rating	Set	1
g)	Push button switch. each type, as applicable	Set	1
h)	Limit switches and Aux. Switches for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
i)	Rotor housing bearing assembly for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1

j)	Motor with gear assembly for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
k)	Corona shield rings as applicable	Set	1
l)	Hinge pins for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
m)	Bearings for complete 3 phase equipment		
i)	For isolator	Set	1
ii)	For earth switch	Set	1
n)	Interlocking coil with resistors, timers, key interlock for complete 3 phase equipment (each type and rating)	Set	1
o)	Relays, Power contactors, resistors, fuses, push buttons, timers & MCBs (complete for one 3 phase equipment)		
i)	For isolator	Set	3
ii)	For earth switch	Set	1
p)	Aux. switch assembly (complete) with 10 NO & 10 NC or more contacts for both isolator & earth switch	Set	1
4	Current Transformer		
4.1	400 KV Current Transformer		
a)	Gas Insulated Complete CT of each type and rating with enclosure	Nos.	3
b)	Secondary bushing of each type	Set	3
4.2	220 KV Current Transformer		
a)	Gas Insulated Complete CT of each type and rating with enclosure	Nos.	3
b)	Secondary bushing of each type	Set	3
4.3	132 KV Current Transformer		
a)	Gas Insulated Complete CT of each type and rating with enclosure	Nos.	3
b)	Secondary bushing of each type	Set	3
5	Voltage Transformer		
5.1	400KV Voltage Transformer		
a)	Gas Insulated Complete PT of each type and rating with enclosure	Nos.	3
5.2	220KV Voltage Transformer		
a)	Gas Insulated Complete PT of each type and rating with enclosure	Nos.	3
5.3	132KV Voltage Transformer		
a)	Gas Insulated Complete PT of each type and rating with enclosure	Nos.	3

B.	AIS Type Outdoor Equipment		
1	Surge Arrester		
1.1	390 kV Surge Arrester with insulating base, terminal connector, Surge counter & accessories	Nos.	3
1.2	216 kV Surge Arrester with insulating base, terminal connector, Surge counter & accessories	Nos.	3
1.3	120 kV Surge Arrester with insulating base, terminal connector, Surge counter & accessories	Nos.	3
2	Erection Hardware		
1.1	160 KN antifog disc insulators, hardware fitting, conductors, PG clamps, connectors including equipments connectors, all accessories etc.	LS	1
1.1	120 KN antifog disc insulators, hardware fitting, conductors, PG clamps, connectors including equipments connectors, all accessories etc.	LS	1
1.1	70 KN antifog disc insulators, hardware fitting, conductors, PG clamps, connectors including equipments connectors, all accessories etc.	LS	1
3	Isolators		
1.1	36 kV isolators (1-phase)	No.	1
C.	Relay and Protection Panels		
C.1	Breaker Relay Panel		
a)	Breaker failure Relay (numerical type), LBB	No.	1
b)	Trip/Close Circuit Supervision Relay	Nos.	2
c)	Self reset trip relay of each type	No.	1
d)	Auto Reclose relay with check synchronizing relay and dead line charging relay	No.	1
e)	Timer relay of each type	No.	1
f)	DC Supervision relays	No.	1
g)	Hand reset Trip Relay of each type	No.	1
h)	Flag relays of each type	No.	1
i)	Auxiliary relays of each type	No.	1
C.2	Line Protection Panel		
a)	Main-1 Numerical distance relay (excluding external trip relays) with software and cable for front panel communication to PC	Set	1
b)	Main-2 Numerical distance relay (excluding external trip relays) with software and cable for front panel communication to PC	Set	1
C.3	Transformer Protection Panel		
a)	Transformer differential protection relay, associated software and cable for front panel communication to PC (in case of numerical relay)	No.	1
b)	Restricted Earth Fault protection relay with non linear resistor and associated software in case of numerical relay	No.	1
c)	Back up protection relay with 3 O/C and E/F element and associated software in case of numerical relay	Set	1
d)	Over fluxing relay	Set	1
e)	Over load relay with timer	Set	1
C.4	Common Spares		
a)	Power supply module for Bus Bar Protection	Set	1
b)	Metrosil (Non Linear resistor) each type	Set	1
c)	Inter-posing CTs & PTs each type	Set	1

D.	Substation Automation system		
1	Hard disk of each type used in Master station, HMI, Printer server (one set each type & capacity)	Set	1
2	Cable & connectors used in Bay control unit, Master station, HMI, printer server (one set each type)	Set	1
3	Applicable RAM (DIMM / SIMM card) used in Master station, HMI, Printer server (one each type)	Set	1
4	Mouse (one set each type)	Set	1
5	Keyboard (one no. each type)	No.	1
6	SMPS used for Master station, HMI, Printer server (one set each type)	Set	1
7	Fan assembly used for Master station, HMI, Printer server (one set each type)	Set	1
8	Mass storage device i.e. Optical drive/ CD writer etc. with driver (one set each type)	Set	1
9	Network card with driver (one set of each type)	Set	1
10	VDU with driver (one set of each type)	Set	1
11	Bay control unit with configuration software	Set	2
12	Operating systems of Master station, HMI, Printer server with the specified software version in CDROM(i.e. WIN NT, Unix etc.) with manual and device drivers	Set	1
13	Source code and compiler of Application software with detailed manual for Master station, HMI, Printer server.	Set	1
14	Auxiliary relays used in bay control unit for control applications (10% of of each type)	Set	1
15	Printer with driver and manual (one set of each type)	Set	1
16	Cartridge for Printer (one set of each type)	Set	2
17	Terminal connectors (male/ female) for optical fibers (one set of each type)	Set	5
18	Special tool for making joints and termination in optical fiber with relevant couplers (one set of each type)	Set	1
19	Optical loss measuring kit with relevant accessories and visual Fiber Optic cable inspection aid	Set	1
E.	Fire Protection System		
A.	Fire Detection and Alarm System		
i)	Smoke detectors (photo-electric type)	No.	10% of total population
ii)	Heat detectors	Nos.	3
iii)	Electrical Control Panel:Annunciation printed circuits (solid state annunciations) in Control Panel	Set	1
F.	DG Set		
i)	Set of filters 1 set (Lube-oil/fuel/Air ckt)	Set	1
ii)	Solenoid Coil assembly	No.	1
iii)	Self Starter assembly with clutch engaging and disengaging arrangements complete with motors	No.	1
iv)	Lube Oil pressure safety control	No.	1
v)	High water temp. safety control	No.	1
vi)	Diode	Nos.	2

G.	Batteries and Battery Charger		
A.1	220V Batteries		
i)	Spare Battery Cell without electrolyte	Nos.	10
ii)	Terminal Connector with Nuts and Bolts	Nos.	10
iii)	Float Level indicators	Nos.	10
iv)	Vent Plugs	Nos.	10
A.2	220V Battery Charger		
i)	Set of Control Cards (All PCB Cards)	Set	1
ii)	Set of relays	Set	1
iii)	Set of contactor	Set	1
iv)	Micro switches	Set	1
v)	Filter capacitor	Set	1
vi)	Three phase full wave bridge rectifier (Thyristor/Diode)	Set	1
vii)	Set of wound resistors	Set	1
viii)	Set of switches	Set	1
ix)	Potentiometer	Set	1
x)	Fuses of Thyristor with indicator	Set	6
B.1	48V Batteries		
i)	Spare Battery Cell without electrolyte	Nos.	10
ii)	Terminal Connector with Nuts and Bolts	Nos.	10
iii)	Float Level indicators	Nos.	10
iv)	Vent Plugs	Nos.	10
B.2	48V Battery Charger		
i)	Set of Control Cards (All PCB Cards)	Set	1
ii)	Set of relays	Set	1
iii)	Set of contactor	Set	1
iv)	Micro switches	Set	1
v)	Filter capacitor	Set	1
vi)	Three phase full wave bridge rectifier (Thyristor/Diode)	Set	1
vii)	Set of wound resistors	Set	1
viii)	Set of switches	Set	1
ix)	Potentiometer	Set	1
x)	Fuses of Thyristor with indicator	Set	6
H.	L.T. Switchgear		
i)	Relays	Set	1
ii)	CTs and PTs	Set	1
iii)	Switches/ Push buttons and Meters	Set	1
iv)	TPN Switches/ MCB	Set	1
v)	MCCB of each rating	Set	1
vi)	L.T. Breaker spares		
a)	Spring charging motor	No.	1
b)	Aux. Contact sets	Set	2
c)	Busbar Seal off insulators	Nos.	5
d)	Arc Chutes	Set	2
e)	Moving contacts	Set	1
f)	Arcing contacts (Fixed/Moving)	Set	1
g)	Springs (Closing/Opening)	No.	1
h)	Closing Coil	No.	1
i)	Tripping Coil	No.	1
j)	Aux. finger contact	Set	1
k)	Limit Switches	Set	1
l)	Jaw contacts	Set	1
m)	Busbar insulators	Nos.	5
n)	Interphase barrier	Nos.	2
o)	Busbar strip 1mm (Aluminium)	MTR	5

I.	Optical Fibre		
	Terminal connectors (male/ female) for optical fibers.	Set	five each type
J.	List of Spares for 500 MVA, 400/220/33 kV, Auto Transformer		
1	Oil Cooler Pump with motor	No.	1
2	Expansion Joint (Complete replacement for one transformer)	Set	1
3	Bushing CTs, each type and ratio	Set	1
4	Bucchohz relay with complete contacts	No.	1
5	Local and remote WTI with contacts	No.	1
6	Oil Temp indicator with contacts	No.	1
7	Pressure relief device	No.	1
8	Magnetic Oil level gauge	No.	1
9	Cooler fan with motor	No.	1
10	Set of Valves (of all sizes)	Set	1
11	Fuses (Complete replacement)	Set	1
12	Aux Transformers for the control of cooler control cabinet and OLTC	No.	one each type
13	Starter contactors, switches and relays for electrical control panels	No.	one each type
14	Remote tap position indicator	No.	1
15	Oil sampling bottles one litre capacity	Nos.	12
16	Oil surge relay for OLTC	No.	1
17	Complete set of Gaskets	Nos.	2
18	Neutral bushing (220kV side) complete with metal parts	No.	1
19	Neutral bushing (33kV side) complete with metal parts	No.	1
20	HV end bushing complete with metal parts & gaskets	No.	1
21	MV end bushing complete with metal parts & gaskets	No.	1
22	LV end bushing complete with metal parts & gaskets	No.	1
K.	List of Spares for 200 MVA, 220/33/11 kV, Auto Transformer		
1	Oil Cooler Pump with motor	No.	1
2	Expansion Joint (Complete replacement for one transformer)	Set	1
3	Bushing CTs, each type and ratio	Set	1
4	Bucchohz relay with complete contacts	No.	1
5	Local and remote WTI with contacts	No.	1
6	Oil Temp indicator with contacts	No.	1
7	Pressure relief device	No.	1
8	Magnetic Oil level gauge	No.	1
9	Cooler fan with motor	No.	1
10	Set of Valves (of all sizes)	Set	1
11	Fuses (Complete replacement)	Set	1
12	Aux Transformers for the control of cooler control cabinet and OLTC	No.	one each type
13	Starter contactors, switches and relays for electrical control panels	No.	one each type
14	Remote tap position indicator	No.	1
15	Oil sampling bottles one liter capacity	Nos.	12
16	Oil surge relay for OLTC	No.	1
17	Complete set of Gaskets	Nos.	2
18	Neutral bushing (220kV side) complete with metal parts	No.	1
19	Neutral bushing (33kV side) complete with metal parts	No.	1
20	HV end bushing complete with metal parts & gaskets	No.	1
21	MV end bushing complete with metal parts & gaskets	No.	1
22	LV end bushing complete with metal parts & gaskets	No.	1
L.	List of Spares for 125 MVAR, 420 kV, Reactor		
1	HV bushing with metal parts and gaskets	No.	1
2	Radiator Section	No.	1
3	Oil temperature indicator	No.	1
4	Fault pressure relay and gas accumulation relay	No.	1
5	Liquid level gauge	No.	1
6	Silicagel dehydrating breather	No.	1
7	Pressure relief device	No.	1
8	Winding temperature indicator.	No.	1

M.	List of Spares for 50 MVAR, 420 kV, Line Reactor		
1	HV bushing with metal parts and gaskets	No.	1
2	Radiator Section	No.	1
3	Oil temperature indicator	No.	1
4	Fault pressure relay and gas accumulation relay	No.	1
5	Liquid level gauge	No.	1
6	Silicagel dehydrating breather	No.	1
7	Pressure relief device	No.	1
8	Winding temperature indicator.	No.	1
N.	List of Spares for Lighting		
1	5% of each type of lighting fixture supplied	SET	1
O.	List of Spares for Hardware & Fittings		
1	5% of each type of Hardware & Fittings supplied	SET	1