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| **"Annexure - B"** |
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| **As the installation ages, there is deterioration to the various parts of the installations and services. Major repairs and replacement of elements become inevitable. It becomes necessary to prevent the installations from deterioration and undue wear and tear as well as to restore it back to its original conditions to the extent possible.** |
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| **As per present trend, electrification and electrical installations are maintained & repaired by the way of yearly ARMO work. But it has been felt that, necessary renovation, up gradation and modification is also required to maintaining such standards with respect to fulfil the requirements and to ensure smooth and satisfactory functioning of installations and depot operations also.** |
|  |  |  |  |  |  |  |  |  |
| **This revision is being brought out by incorporating changes in yardsticks for up gradation / aesthetic improvement, along with useful to maintain installations in unique style by various Field Units.** |
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| **It has been observed that, steel conduits inside ancillaries building are getting corroded due to water seepage / leakage from wall as well as from slab of the ancillary buildings. Hence wiring may be done by using good quality ISI PVC conduits for labour shed, male/female lavatory, depot office, tiffin room / canteen, pump room, security office, switch room etc. PVC conduit in recesses and modular type switch boards and accessories may be provided for aesthetical look in depot office, QC lab, godown unit office on platform etc. where office work functioning.** |
|  |  |  |  |  |  |  |  |  |
| **The items are mentioning below for incorporating the same for special repairs, renovation and restoration of the electrification and installations by way of dismantling/removing non-usable material (Which are to consideration for credit to the estimate/work) and to provide to replace by the items mentioned below:** |
|  |  |  |  |  |  |  |  |  |
| **Further this frame is also be usefull for carrying out new electrification and installation work** |
|  |  |  |  |  |  |  |  |  |
| **1** | **Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. Group 'C' (Group may be selected as per CPWD specification)** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Office, QC Lab, Godown unit office, Weigh bridge etc. if renovation work is required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **2** | **Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 3 pin 5/6 A modular socket outlet and 5/6 A modular switch, connections etc. as required** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Light plug points on board in Office, QC Lab, Godown unit office, Weigh bridge etc. if renovation work is required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **3** | **Supplying and fixing following size/ modules, GI box alongwith modular base & cover plate for modular switches in recess etc. as required.** |
|  | **AND** |
| **4** | **Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.** |
| **4.1** | **5/6 A modular switch** |  |  |  |  |  |  |
| **4.2** | **3 pin 5/6 A modular socket outlet** |  |  |  |  |  |  |
| **4.3** | **15/16 A modular switch** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | This item No. 3 and 4 may be taken for providing computer boards (with 15/16 Amp. Modular switch as Main with 3 Nos. 5/6 Amp modular switches and 3 Nos. 5/6 Amp modular socket outlet) in Office, QC Lab, Godown unit office, Weigh bridge etc. along with renovation work if required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **5** | **Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing 6 pin 5/6 A & 15/16 A modular socket outlet and 15/16 A modular switch, connections etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing Raw power and water cooler, Airconditioners etc in Office, QC Lab, Godown unit office, Weigh bridge etc. along with renovation work if required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **6** | **Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed medium class PVC conduit, with piano type switch, phenolic laminated sheet, suitable size M.S. box and earthing the point with 1.5 sq.mm. FRLS PVC insulated copper conductor single core cable etc. as required. Group 'C' (Group may be selected as per CPWD specification)** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Labour Shed, Sentry cum switch room, Male / Female Lavatory Block, Tiffin Room / Canteen Building, Public Convenience, Pump Room etc. if renovation work is required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **7** | **Supplying and fixing metal box of 150mm X 75mm X 60mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 3 pin 5/6 amps socket outlet and 5/6 amps piano type switch, connection, painting etc. as required. (For light plugs to be used in non residential buildings).** |
|  |  | **On switch board** |  |  |  |  |  |  |
|  | This item may be taken for light plug points on board in Labour Shed, Sentry cum switch room, Male / Female Lavatory Block, Tiffin Room / Canteen Building, Public Convenience, Pump Room etc. along with renovation work is required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **8** | **Supplying and fixing metal box of 180mm X 100mm X 60mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing 6 pin 5/6 & 15/16 A socket outlet and 15/16 A piano type switch, connections, painting etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for power plug points in Labour Shed, Sentry cum switch room, Male / Female Lavatory Block, Tiffin Room / Canteen Building, Public Convenience, Pump Room etc if required. along with renovation work is required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **9** | **Wiring for circuit/ submain wiring alongwith earth wire with the following sizes of FR PVC insulated copper conductor, single core cable in surface/ recessed medium class PVC conduit as required** |
| **9.1** | **4 X 4 sq. mm + 2 X 4 sq. mm earth wire** |  |  |  |  |  |  |
| **9.2** | **4 X 2.5 sq. mm + 2 X 2.5 sq. mm earth wire** |  |  |  |  |  |  |
| **9.3** | **2 X 4 sq. mm + 1 X 4 sq. mm earth wire** |  |  |  |  |  |  |
| **9.4** | **2 X 2.5 sq. mm + 1 X 2.5 sq. mm earth wire** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Sub-main and Circuit wiring by way of telescopic and looping manner in appropriate size of conduit to keep aesthetic look by minimum numbers of conduits run w.r.t. number of cables drawing capacity, current carrying capacity and load etc. |
|  |  |  |  |  |  |  |  |  |
| **10** | **Supplying and fixing 4 way (4 + 12), Double door, horizontal type three pole and neutral, sheet steel, MCB distribution board, 415 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/ Isolator)** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Main Boards for depot office and Weighbridge. |
|  |  |  |  |  |  |  |  |  |
| **11** | **Supplying and fixing 8 way, Double door, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator)** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Main Board in Labour Shed, Sentry cum switch room, Male / Female Lavatory Block, Tiffin Room / Canteen Building, Public Convenience, Pump Room etc if required. along with renovation work is required w.r.t. present condition. |
|  |  |  |  |  |  |  |  |  |
| **12** | **Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, “C” curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
| **12.1** | **Single pole**  |  |  |  |  |  |  |
| **12.2** | **Single pole and neutral** |  |  |  |  |  |  |
| **12.3** | **Triple pole and neutral** |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| **13** | **Supplying and fixing 63 Amp. rating, four pole, (three phase and neutral), 415 volts, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
| **14** | **Supplying and fixing 25 amp rating, double pole, (single phase and neutral), 240 V, residual current circuit breaker (RCCB), having a sensitivity current 30 mA in the existing MCB DB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
| **15** | **Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.** |
|  |  |  |  |  |  |  |  |  |
| **16** | **Supplying and fixing stepped type electronic fan regulator (Piano type) on the existing cover plate switch box including connections but excluding modular plate etc. as required.** |
|  |  |  |  |  |  |  |  |  |
| **17** | **Supplying of metallic box type batten luminaire fixture suitable for 18 to 22 watt LED retrofit tube complete with provision for fixing suspended by two number conduits down rod or on surface of wall/truss/purlin with side conduit entry facility for wire connection.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for internal lighting. |
|  |  |  |  |  |  |  |  |  |
| **18** | **Supplying of 18 to 22 watt LED retrofit polycarbonate body double side connection type tube suitable to mount on and metallic box type batten fixture** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for internal lighting. |
|  |  |  |  |  |  |  |  |  |
| **19** | **Supplying of 305 mm sweep Medium Duty exhaust fan of 1400 RPM, Metallic Grey Colour with lours and suitable size of clamps for fixing arrangements as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for Toilet blocks, Lavatory Blocks, QC Store, Kitchen etc |
|  |  |  |  |  |  |  |  |  |
| **20** | **Supplying of 1200mm sweep capacitor type AC. Ceiling Fan complete with 30 cm. down rod with hanging shackle blade and canopy suitable for 230/240 volts ,50HZ, single phase confirming to ISS/374/1966 as amended from time to time etc as reqd.** |
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| **21** | **Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable etc. as required.** |
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| **22** | **Installation of exhaust fan up to 450 mm sweep in the existing opening, including making good the damage, connection, testing, commissioning etc. as required.**  |
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|  |  |  |  |  |  |  |  |  |
| **23** | **Supplying and fixing DP sheet steel enclosure on surface/ recess along with 25/32amps 240 volts “C” curve DP MCB complete with connections, testing and commissioning etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for controlling ON / OFF the street lighting fixtures to be provided on the wall for external surround lighting. |
|  |  |  |  |  |  |  |  |  |
| **24** | **Supplying of XLPE insulated & PVC tape inner-sheathed aluminium conductor armoured cable of 1.1 KV grade of 2 x 10 sqmm size confirming to IS:7098 (Part- I) 1988 with up to date amendment as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures are to be provided on the Buildings for external lighting. **Cable size is taken 2 x 10 sqmm, for the purpose in any case in emergency it can be converted in power connection also. Laying of cable should be taken by executing vide other item on surface of wall or as the case may be.** |
|  |  |  |  |  |  |  |  |  |
| **25** | **Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of size Upto 35 sq. mm on wall or steel structure surface as required.** |
|  |  |  |  |  |  |  |  |  |
| **26** | **Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of size up to 35sqmm in the existing masonry open duct as required.** |
|  |  |  |  |  |  |  |  |  |
| **27** | **Supplying and fixing of out door type loop in loop out cable junction box fabricated from 1.6 mm MS sheet enclosed weather proof, dust proof, water proof and locking arrangement internally embedded gasket with bottom cable entry plat through cable glands fixed with clamps on steel structure and wall. Separate for incoming and out going cables and wires duly fitted with following in it.HD Connector for 10 to 16 sqmm - 4 Nos. 6 amp SP 'C' curve 10 KA MCB - 1 No.fixing Clamps - 2 Nos.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures loop connections are to be provided on the on wall for external street and surround lighting. |
|  |  |  |  |  |  |  |  |  |
| **28** | **Supplying and making end termination with brass compression gland and aluminium lugs for 2 x 10 sq mm (19 mm) size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 KV grade as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for cable connection to loop box and MCB DB for street & surround lighting out side the building |
|  |  |  |  |  |  |  |  |  |
| **29** | **Supplying and fixing of 32 mm dia X 1.00 metres long G.I. pipe (medium class) bracket for mounting of all type of street light fitting on pole / wall / structure including bending the pipe to the required shape, 2 nos 40 mm X 3 mm flat iron clamps with nuts, bolts and washer, painting the flat iron with primer and finish paint etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures mounting are to be provided on the out side wall of the building for external street & surround lighting. |
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| **30** | **Supplying of Outdoor aesthetically designed 30 watt LED Street Light Luminaire with single piece die cast aluminium housing, for top open for easy maintenance, complete with IP66 protection Class suitable for pole/ bracket mounting . Provided with high quality driver for protection against mis wiring, over voltage, surge protection and high and low Voltage** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for street lighting fixtures to be provided on the out side wall to surround building for external lighting. |
|  |  |  |  |  |  |  |  |  |
| **31** | **Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube etc. directly on ceiling/ wall, including connection with 1.5 sq. mm FR PVC insulated, copper conductor, single core cable and earthing etc. as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for fixing of LED tube fixtures, flood light fittings & street lighting fixtures etc. |
|  |  |  |  |  |  |  |  |  |
| **EARTHING** |
|  |  |  |  |  |  |  |  |  |
|  | **Provision is made for earthing the metallic body of equipments and non-current carrying metallic components in the substation, as well as in the internal/external electrical installations. 2 earthing stations & connections required for two or more phase power supply and 1 earthing stations & connections required for single phase power. Normally an earth electrode shall not be located closer than 1.5 m from any building. Care shall be taken to see that the excavation for earth electrode does not affect the foundation of the building; in such cases, electrodes may be located further away from the building, with the prior approval of the Engineer-in-Charge** |
|  |  |  |  |  |  |  |  |  |
| **32** | **Earthing with G.I. earth pipe 4.5 meter long, 40 mm dia including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal/coke and salt as required.** |
|  |  |  |  |  |  |  |  |  |
|  | **OR as the condition of site** |
|  |  |  |  |  |  |  |  |  |
| **32** | **Earthing with G.I. earth plate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonry enclosure with cover plate having locking arrangement and watering pipe of 2.7 metre long etc. with charcoal/ coke and salt as required.** |
|  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing earthing stations to Main panel, Feeder pillars & MBs. **2 earthing stations & connections required for two or more phase power supply and 1 earthing stations & connections required for single phase power.** |
|  |  |  |  |  |  |  |  |  |
| **33** | **Providing and laying earth connection from earth electrode with 6 SWG dia G.I. Wire in 15 mm dia G.I. pipe from earth electrode including connection with G.I. thimble excavation and re-filling as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing earthing stations to Main Boards. **The earthing conductor from the electrode up to the building shall be protected from mechanical injury by a medium class, 15mm dia. GI pipe. The protection pipe in ground shall be buried at least 30 cm deep (to be increased to 60 cm in case of road crossing and pavements)** |
|  |  |  |  |  |  |  |  |  |
| **34** | **Providing and fixing 6 SWG dia G.I. wire on surface or in recess for loop earthing as required.** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for providing earthing stations to MBs, SMBs, DBs etc or loop earthing |
|  |  |  |  |  |  |  |  |  |
| **35** | **The items non repairable/obsolete are to be dismantled where the work has to be executed and take away by the giving the credit to the work estimate** |
|  |  |  |  |  |  |  |  |  |
|  | This item may be taken for credit the items which are to be dismantled for replacement by this work. Item contained whole activity like dismantling, taking away and give sredit to the work/estimate on as is where is bases. |