

Explanatory Notes

1) SOR Item No. 1-5 (Wiring & Drawing in PVC conduit)

Supply, Fixing, testing & commissioning of FRLS PVC insulated multi stranded copper (annealed) conductor single core cable conforming to IS 694 (or Latest Version) , and drawing in Laid (recessed /surface) PVC conduit pipe for wiring of point wiring / circuit wiring / sub main / main as required as per technical specification including connections, testing and commissioning. Size, Quantity shall be as per SOR.

2) SOR item NO. 6 (Ceiling Rose)

Supply, Fixing, testing & commissioning of ceiling rose, 3 plate conforming to IS: 371-1999 (or Latest Version) & installation on the junction box of laid conduit including connections, testing & commissioning as per site requirement. Quantity and Rating shall be as per SOR.

3) SOR item NO. 7 (PVC Conduit Pipe)

Supply and recessing/fixing of PVC conduit pipe of 25 mm dia. conforming to IS. 9537 Part-III.1987 (or Latest version) with accessories junction box, bends etc. including making chase, plastering/clamping etc. as per site requirement. Size, Quantity shall be as per SOR.

4) SOR Item No. 8-9 (GI box with modular plate and cover)

Supplying and fixing suitable size GI box with modular plate and cover in front on surface or in recess, including providing and fixing modular socket outlet and modular switch, connections etc. as required and conforming to IS 3854:2023, IS 14772:2020 or latest & CPWD General Specifications for Electrical Works Part-I Internal – 2023. Quantity and Rating shall be as per SOR.

5) SOR Item No. 10-12 (Wiring & Drawing in PVC conduit)

Supply, Fixing, testing & commissioning of FRLS PVC insulated multi stranded copper (annealed) conductor single core cable conforming to IS 694 (or Latest Version) , and drawing in Laid (recessed /surface) PVC conduit pipe for wiring of point wiring / circuit wiring / sub main / main as required as per technical specification including connections, testing and commissioning. Size, Quantity shall be as per SOR.

6) SOR Item No. 13-15 (Various Size Modules, Modular base and plate with Steel Box)

Supply, fixing, testing and commissioning of mentioned modules, steel box along with modular base and cover plate for modular switches/ sockets in recess etc. as required as per latest relevant IS, IE rules and site requirement complete and conforming to CPWD General Specifications for Electrical Works Part-I Internal - 2023. The scope of work also involves replacement of existing

switch/socket/modular plates/switch box of similar make as per site requirement if any. Size, Quantity and Rating shall be as per SOR.

7) SOR Item No. 16-20 (Modular Switch Socket, Blanker Plate)

Supplying and fixing modular switch /socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required as per IS, IE rules and site requirement complete and conforming to CPWD General Specifications for Electrical Works Part-I Internal - 2023 & confirming to latest relevant IS. The scope of work also involves replacement of existing switch/socket/modular plates/switch box of similar make as per site requirement if any. Quantity and Rating shall be as per SOR.

8) SOR Item No. 21 (Electronic Fan regulator)

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 as per relevant IS & conforming to CPWD General Specifications for Electrical Works Part-I Internal – 2023. Quantity and Rating shall be as per SOR.

9) SOR Item No. 22 (BLDC wall mounted fan)

Supply, fixing, Testing and Commissioning of 400 mm sweep BLDC wall mounted fan having Power wattage ≤ 35 Watt, Air delivery minimum 76 Cum/Min, suitable for 230 V, 50 Hz, single phase AC Supply and as per latest relevant IS complete. Size, Quantity and Rating shall be as per SOR.

10) SOR Item No. 23 (1400 mm sweep: Ceiling Fan)

Supply, Installation, Testing and Commissioning of ceiling fan with Brush Less Direct Current (BLDC) Motor, class of insulation: B, 3 nos. metal (Aluminium alloy) blades, 30 cm long down rod, 2 nos. canopies, shackle kit, safety rope, copper winding, steel/Al body Power Factor not less than 0.9, Service Value (CM/M/W) minimum as below, 350 RPM (tolerance as per IS : 374-2019), THD (Total Harmonic Distortion) less than 10%, suitable for operation with regulator for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 °C (max.), insulation resistance more than 2 mega ohm, suitable for 230 V, 50 Hz, single phase AC supply, Ceiling Fan compliant to IS 374:2019 fan i/c external connections with 1.5 sq.mm FRLS/HFFR, PVC insulated copper conductor single core cable and earthing etc. as required.

1400mm, service value ≥ 6.0 CM/Min/Watt, air delivery 245 CM/Min (Minimum) conforming to IS 374 2019 & IS 12615:2018 or latest.

Size, Quantity and Rating shall be as per SOR.

11) SOR Item No. 24 (1200mm sweep: Ceiling Fan)

Supply, Installation, Testing and Commissioning of 1200 mm sweep, BEE 5 star rated, ceiling fan with brush less direct current (BLDC) motor, class of insulation B, 03 Nos blades, 30 CM long down rod, 02 Nos. canopies, shackle kit, safety rope, copper winding, Power factor not less than 0.9, service value

(CM/M/W) minimum 6.00, Air delivery minimum 210 Cum/Min, 350RPM (tolerance as per IS: 374-2019 or latest) THD less than 10%, remote or electronic regulator unit for speed control and all remaining accessories including safety pin, nut bolts, washers, temperature rise=75 degree C (max), insulation resistance more than 2 mega ohm, suitable for 230 V, 50Hz, single phase AC supply, earthing etc. complete as required. It shall also include the scope of supply and installation of safety cord of SS as per IS:302 Part 2 Sec-80. Dia & length of such cord shall be as per recommendation of OEM of fan and same shall be approved by railway. Size, Quantity and Rating shall be as per SOR.

12) SOR Item No. 25 (Fresh air fan)

Supply, fixing, testing & commissioning of 250mm sweep fresh air fan complete conforming to IS 2312 & IS 302 or latest and other relevant IS/IEC standards. Size, Quantity and Rating shall be as per SOR.

13) SOR Item No. 26 (Exhaust fan: 300mm sweep)

Supply, installation, testing and commissioning of single phase propeller type exhaust fans sweep size 300 mm etc. including grouting of MS nuts, bolts and connection complete as per conforming to IS 2312 & IS 302 and other relevant IS/IEC standards & site requirement. Make Bajaj, Usha, Havells, Orient or equivalent. Size, Quantity and Rating shall be as per SOR.

14) SOR Item No. 27 (Exhaust fan: 380mm sweep)

Supply, fixing, testing and commissioning of 380mm sweep, 1400 rpm (approx) propeller type exhaust fan complete in all respect as specification and as per site requirement, including grouting of nut, bolts, washer and with the suitable fasteners conforming to IS 2312 & IS 302 or latest and other relevant IS/IEC standards. Make Bajaj, Usha, Havells, Orient or equivalent. Size, Quantity and Rating shall be as per SOR.

15) SOR Item No. 28-29 (LED light luminaire)

Supply, fixing, testing and commissioning of LED light luminaire, having system wattage as mentioned. LED tube and inbuilt LED driver, CRCA body powder coated, complete with all mounting arrangement, accessories. The LED based 4 ft. tube light (lamp) shall be conforming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Size, Quantity and Rating shall be as per SOR.

16) SOR Item No. 30 (Bed Side Light)

Supply, fixing, testing and commissioning of LED bed side lights, system wattage 6W, CRI>80, 4000K/6000K, Housing made of aluminum/CRCA sheet with powder coated, mild steel neck, cool white with compatible inbuilt LED driver complete with prior approval of sample and shall be conforming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev-

'4') at Tech Spec-II attached or latest & as per site requirement. Size, Quantity and Rating shall be as per SOR.

17) SOR Item No. 31 (LED down Lighter)

Supply, fixing, testing and commissioning of LED down lighter, housing aluminum die cast, white powder coated and PMMA diffuser having system wattage 15-18 Watt complete with all mounting arrangement, accessories complete confirming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Size, Quantity and Rating shall be as per SOR.

18) SOR Item No. 32 (LED Foot Light)

Supply, fixing, testing and commissioning of LED Foot Light as per following Details:- i) Power: 4 Watt. ii) Light Colour: Warm White. iii) Color Temperature: 3000K. iv) Light Source: High efficiency long Life SMD LED. v) Material: Aluminium Die cast. vi) Finish type: Powder Coated. vii) Shed Colour: White. viii) Mounting: Wall Mount. ix) Installation type: Flush mount. x) Switch: No. xi) Product Dimension: a) Length: 85.5 mm. b) Width: 85.5 mm. c) Height: 30.5 mm. xii) Cut-Out(C): 70 X 70mm. xiii) Indoor/Outdoor Usage: Indoor. xiv) Lighting method: Down Light of Reputed make conforming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Size, Quantity and Rating shall be as per SOR.

19) SOR Item No. 33 (LED light luminaries 595x595 mm size)

Supply, fixing, testing and commissioning of LED light luminaries 595x595 mm size, recessed mounting fitting (Tile type), as per IS: 10322 having system wattage less than or equal to 48 Watt, CRCA body powder coated, high efficiency milky white PMMA diffuser with no bright spot visible, complete with all mounting arrangement with suitable frame to avoid dropping down of fitting of make Phillips, Bajaj, Havells or similar confirming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev'4') at Tech Spec-II attached or latest. Size, Quantity and Rating shall be as per SOR.

20) SOR Item No. 34 (LED Luminaire 4-feet long surface mounting 36-Watt)

Supply, fixing, testing and commissioning of 4-feet long surface mounting 36-Watt, 5700K, CRI>80, LED Luminaire as per CEE/NR's spec. No. CEE/NR/121 Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121 Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest, IS, IE rules and site requirement. Fitting shall be environmentally friendly, long life, corrosion resistant, impact proof IP 66 with PC housing & opal finish cover suitable for wet location similar to Make - Havells Model No. MAGNUM NEO or equivalent. Fitting shall be suitable for operation on single phase 240Volt, 50 Hz AC supply. Size, Quantity and Rating shall be as per SOR.

21) SOR Item No. 35-36 (LED based street light luminary)

Supply, fixing, testing and commissioning of LED based street light luminary with cool white light, pressure die cast aluminum housing, IP 66 or latest complete confirming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Quantity and Rating shall be as per SOR.

22) SOR Item No. 37 (Decorative ultra sim square profile LED lighting)

Provision of 10 Watt LED 6500 K E-Lite LED pride plus neo decorative ultra sim square profile LED lighting fixture with extruded polycarbonate, environmental friendly, energy efficient suitable for mirror lighting complete as per CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest, IS, IE rules and site requirement. Quantity and Rating shall be as per SOR.

23) SOR Item No. 38 (Decorative gate light)

Supply, fixing, testing and commissioning of decorative gate light made up of high grade unbreakable polycarbonate material suitable for 20 Watt LED lamp B22 base complete shall be conforming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest and site requirement & prior approval of sample. Quantity and Rating shall be as per SOR.

24) SOR Item No. 39 (Garden LED Light)

Supply, fixing, testing and commissioning of Garden LED Light (18-22 W) as per technical spec. approved by competent authority and shall be conforming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Quantity and Rating shall be as per SOR.

25) SOR Item No. 40 (LED pendent rectangular formation luminaries)

Supply, fixing, testing and commissioning of LED pendent rectangular formation luminaries with LED system power 24W/meter, luminous lux of luminaire 2400 LM/meter, direct light emission CRI>80, color temperature 4000K, neutral white, 230V constant current driver, 70% of luminous flux after 50000 operating hours, energy efficient LED fitting complete shall be conforming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev- '3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Size, Quantity and Rating shall be as per SOR.

26) SOR Item No. 41 (LED based highbay luminary)

Supply, fixing, testing and commissioning of LED based highbay luminary with IP 66 having system wattage less than or equal to 200 Watt complete confirming to CEE/NR's spec. No. CEE/NR/121-Elect/PS/2018 (Rev-'3') or latest at Tech Spec-I attached & PCEE/NR's spec. No. PCEE/NR/121-Elect/PS/2019 (Rev- '4') at Tech Spec-II attached or latest. Quantity and Rating shall be as per SOR.

27) SOR Item No. 42 (Design, manufacture, display of wall / hanging / floor mounting type LED illuminated sign / direction boards)

Design, manufacture, display of wall / hanging / floor mounting type LED illuminated sign / direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2 mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed /router cut on monomeric calendered vinyl of 70 mm thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft. and with brightness more than ambient light. Suitable size endcap of 1.5 mm thick SS 304 should be provided as per Railway Board letter no. 2023/SD-II/22/07/02 dated 15.05.2023. Size, Quantity and Rating shall be as per SOR.

28) SOR Item No. 43 (Errection and installation of wall / hanging / floor mounting type LED illuminated sign /direction boards)

Errection and installation of wall / hanging / floor mounting type LED illuminated sign /direction boards in half elliptical shape. The display sheet shall be of unbreakable 040 translucent polycarbonate sheet of 2mm thickness. The text / graphics matter visibility shall not be less than 160 deg. The approved colour text and graphics shall be printed /router cut on monomeric calendered vinyl of 70 mm thickness and shall be firmly pasted on display sheets. The mounting arrangement shall be hanging, wall mounting, ceiling mounting, pole mounting or floor mounting and as per site requirement. The signage shall have the integral mounting arrangements with sturdy structural frame and ACP cladding on the back side of the signage to avoid rusting and entry of dust. The LED board shall have uniform illumination with 4-8 W / sq. ft. and with brightness more than ambient light. Size, Quantity and Rating shall be as per SOR.

29) SOR Item No. 44 (Electric water heater)

Supply, installation, testing & commissioning of 25 ltrs stationary storage type electric water heater (Geyser) having BEE star rating- 5 star, Installation : vertical, ABS Body, element wattage - 2kW, Tank capacity - 25 ltrs, conforming to IS 2082:2018 or latest complete and as per site requirement.

Make: Havells, Bajaj, Usha or equivalent. Quantity and Rating shall be as per SOR.

30) SOR Item No. 45 (Power unit complete with modular plate, MCB, starter, plug & socket for AC)

Supplying & recessing/ fixing suitable size GI box with modular plate and covering front on surface or in recess including providing and fixing 16/25 A modular socket outlet and 25 A modular SP MCB, "C" curve including connections, painting etc. as required as per latest relevant IS & IE rules & conforming to CPWD General Specifications for Electrical Works Part-I Internal – 2023. Quantity and Rating shall be as per SOR.

31) SOR Item No. 46 (PRCD Plug)

Supply of PRCD plug 16 A of make Havells, Legrand, ABB or equivalent as per IEC 61540:1997 or latest complete. Quantity and Rating shall be as per SOR.

32) SOR Item No. 47 (MCB)

Supply, fixing, testing and commissioning of MCB 40-63Amps TPN 'C' series complete with enclosure made of CRCA sheet powder coated. Quantity and Rating shall be as per SOR.

33) SOR Item No. 48 (Octagonal Pole)

Supply & erection of hot dip galvanized octagonal pole 5 Mtrs. long Single Arms, confirming to IS 2629/BSEN ISO 1461 latest version with top 70 mm and bottom 130 mm around face made of 3 mm thick, steel base plate size 200 x200x12 mm complete with appropriate sleeve at the top of the pole for mounting arm bracket 300 mm long (or as per site requirement) suitable for LED street light fittings including casting, muffing with cement concrete foundation (1:2:4) painting, earthing and foundation GI nut, bolts with washer and smart pack junction box with 1A single pole MCB and terminals. Pole junction box shall be sealed with water proof tape and display of danger sticker. Note- Wiring in between pole junction box to fitting shall be done through 3 cores 1.5 sq. mm double insulated weather proof cables confirming to IS 456 & other relevant IS/IEC standards. Size, Quantity and Rating shall be as per SOR.

34) SOR Item No. 49 (5 KV portable digital insulation tester)

Supply, inspection & testing of 5 KV portable digital insulation tester capable to measure at each stage volts of 250/500/1000/2500/5000 volts along with capable to give PI and DAR reading values having short circuit current 3mA or above, like of Sanwa MD 5000 or similar with 12 months warranty. Two days field training is mandatory by OEM representative to railway staff for better application utilization of products. Quantity and Rating shall be as per SOR.

35) SOR Item No. 50 (DC Hi-Pot)

Supply, Inspection & testing of DC Hi-Pot having 230V AC input and variable 0-40KV DC output, earth connection & zero start interlock, leakage current auto tripping at preset current range from 0- 30mA, corona free Shielded terminal HV lead of 10 meters length, adjustable timer up to 15 minutes,

discharge rod, display meters, portable housed sheet metal box and all accessories, with 12 months warranty. Quantity and Rating shall be as per SOR.

36) SOR Item No. 51 (LT distribution board)

Supply, fixing, testing and commissioning of LT distribution board double door outdoor type made up of CRCA sheet with anti-corrosion treatment and suitable, IP 43 phosphatised powder painted complete with neutral link, earth point, Din rail and prewired confirming to IS:13032, IEC 60947 & IS/IEC: 61439 or latest of make ABB, Siemens, L&T, Schneider, Legrand or equivalent with following items of matching make to be fixed in distribution board, confirming to IS/IEC: 60898-1:2002 or latest, IE rules and site requirement. It should be rodent entry proof. It should also include well dressing and coding of circuit.

It should be rodent entry proof. It should also include well dressing and coding of circuit IP2X terminal, reversible door with 180 degree opening, cement spill protection, detachable gland at top and bottom and short link for MCBs. It should also include proper tagging on electrical wires/cables which clearly indicate the incoming point or source and outgoing point of wires/cables.

Size, Quantity and Rating shall be as per SOR.

37) SOR Item No. 52 (LT distribution board)

Supply, fixing, testing and commissioning of LT distribution board Surface mounting/recessed mounting double door outdoor type made up of CRCA sheet with anti-corrosion treatment and suitable, IP 54 phosphatised powder painted complete with neutral link, earth point, Din rail and prewired confirming to IEC 61439 or latest of make ABB, Siemens, L&T, Schneider, Legrand or equivalent with following items of matching make to be fixed in distribution board, confirming to IEC 60947 or latest, IE rules and site requirement. It should be rodent entry proof. It should also include well dressing and coding of circuit & as per explanatory note.

It should be rodent entry proof. It should also include well dressing and coding of circuit IP2X terminal, reversible door with 180 degree opening, cement spill protection, detachable gland at top and bottom and short link for MCBs. It should also include proper tagging on electrical wires/cables which clearly indicate the incoming point or source and outgoing point of wires/cables.

Size, Quantity and Rating shall be as per SOR.

38) SOR Item No. 53-54 (Feeder pillar)

Design, Supply, fixing, testing and commissioning of front operated double door type weather proof feeder pillar body made of CRCA sheet with anti-corrosion treatment and suitable having IP 65 protection (MCCB - Incoming & MCCB - Outgoing) comprising with the following MCCB's fixed in it of make: Siemens, L&T, Schneider, Legrand or equivalent conforming to IEC 60947 & IS/IEC:61439 or latest with digital measuring instrument & bus-bar arrangement and as per latest IS, IE rules and site requirement. It should be

dust and vermin proof and powder coating as per IS 13871-2021 (or latest version). Size, Quantity and Rating shall be as per SOR.

39) SOR Item No. 55 (GI Pipe earthing)

Earthing with 40 mm dia GI pipe class 'B' 4.5 meter long earth electrode as per IS:3043 (latest version) to achieve earth resistance less than 5 ohms including construction of masonry enclosures with hinged cover plate of cast iron with locking arrangement (approx. size 400 mm x 400 mm) on top, provision of earth plate, connections from earth electrode to switch gear/pole as per drawing. Size, Quantity and Rating shall be as per SOR.

40) SOR Item No. 56 (GI strip)

Supplying and laying 25 mm X 5 mm G.I strip confirming to relevant IS as per IS:3043 (Latest version), fixing on surface or as per site condition, clamping or fixing with suitable arrangement as per site requirement, including connection/ terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I. nut bolt & spring washer spaced at 50 mm). Quantity, Size and rating shall be as per SOR.

41) SOR Item No. 57-58 (GI wire)

Supplying and laying mentioned SWG G.I. wire at 0.50 metre below ground level for conductor earth electrode, including connection/ termination with GI thimble etc. as required as per IS:3043 (Latest version) and conforming to CPWD General Specifications for Electrical Works Part-I Internal - 2023 and CPWD DSR (E&M) 2022. Quantity, Size and rating shall be as per SOR

42) SOR Item No. 59 (Copper Plate Earthing)

Earthing with 600x600x3mm thick copper plate earth electrode as per IS 3043(Latest version), to achieve earth resistance less than one ohm, including construction of masonry enclosure with hinged cover plate of cast iron with locking arrangement (Approx. size 600x600 mm) on top, watering pipe, connections from earth plate to top with 40x6mm copper strip in 50 mm dia pipe class 'B' provision of earth plate as per drawing and conforming to CPWD General Specifications for Electrical Works Part-I Internal - 2023 and CPWD DSR (E&M) 2022. Quantity, Size and rating shall be as per SOR

43) SOR Item No. 60 (Copper strip)

Supplying and laying 40 mm X 6 mm copper strip at 0.3 metre below ground as strip earth electrode confirming to relevant IS as per IS:3043 (Latest version), including connection/ terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt & spring washer spaced at 50mm). Quantity, Size and rating shall be as per SOR.

44) SOR Item No. 61-64 (Laying of cable of different size: direct in ground)

Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of mentioned size direct in ground including excavation, sand cushioning, protective covering and refilling the trench [size width- not less than 35 cm and depth-(75-100) cm] etc. as required as per detail drawing approved by competent authority and conforming to IS 1255 (Reviewed in

2016) or latest and conforming to CPWD General Specifications for Electrical Works Part-II External - 2023 and CPWD DSR (E&M) 2022. Quantity, Size and rating shall be as per SOR.

45) SOR Item No. 65-68 (Laying of cable of different size: direct in ground in the same trench)

Laying of one number additional PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of mentioned size direct in ground in the same trench in one tier horizontal formation including excavation, sand cushioning, protective covering and refilling the trench [size width- not less than 55 cm and depth-(75-100) cm maintaining gap not less than 20 cm] etc. as required as per detail drawing approved by competent authority and conforming to IS 1255 (Reviewed in 2016) or latest and conforming to CPWD General Specifications for Electrical Works Part-II External - 2023 and CPWD DSR (E&M) 2022. Quantity, Size and rating shall be as per SOR.

46) SOR Item No. 69-72 (Laying of cable of different size: wall surface)

Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of mentioned size on wall surface as required. In case of any demolition of PCC, RCC, road, wall surface etc. the contractor should ensure repairing of the same on own expenses as per site requirement and satisfaction of railway representative conforming to IS 1255 (Reviewed in 2016) or latest and conforming to CPWD General Specifications for Electrical Works Part-II External - 2023 and CPWD DSR (E&M) 2022. Quantity, Size and rating shall be as per SOR.

47) SOR Item No. 73 (Laying of cable of different size: in the existing RCC/HUME/METAL/HDPE pipe)

Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV grade of mentioned size in the existing RCC/HUME/METAL/HDPE pipe as required conforming to IS 1255 (Reviewed in 2016) or latest and conforming to CPWD General Specifications for Electrical Works Part-II External - 2023 and CPWD DSR (E&M) 2022. Quantity, Size and rating shall be as per SOR.

48) SOR Item No. 74 (Supplying and laying of DWC HDPE pipe)

Supplying and laying of mentioned size DWC HDPE pipe ISI marked along with all accessories like socket, bend, couplers etc. conforming to IS 14930 part II complete with fitting and cutting, jointing etc. direct in the ground (75 cm below the ground level) including excavation and refilling the trench but excluding sand cushioning and protective covering etc. complete as required. Quantity, Size and rating shall be as per SOR.

49) SOR Item No. 75 (Fabrication of MS stand/cabinets)

Fabrication of MS stand/cabinets or any other MS structure of approved drawing for precooling points/battery charger/ covering of electrical structure. The work includes cutting, welding, riveting, nut bolts of the MS structure including applying a primary coat of steel primer and one coat of paint of approved shade. Quantity shall be as per SOR.

50) SOR Item No. 76-77 (Open Well Monoblock Submersible pump set)

Supply & testing and Supply, lowering, testing and commissioning of open well monoblock submersible pump set water cooled type of capacity 30 HP, 2190 LPM, 45 mtr. head 3Ph, 415 V, 50 Hz, AC supply with 2x3x6 sq.mm ISI marked submersible cable, SS impeller, copper rotor, delivery size 100 mm complete confirming to IS 8034 latest version with all accessories and site requirement. Make: KSB, Crompton, Kirloskar or equivalent. Quantity, Size and rating shall be as per SOR.

51) SOR Item No. 78-79 (Vertical type Submersible Bore Well pump set)

Supply, fixing, testing and commissioning and Supply & testing of Vertical type submersible bore well pump set of capacity 15 HP, 500 LPM, 120 mtr. head 3Ph, 415 V, 50 Hz, AC supply with SS impeller, suitable size ISI marked submersible cable, copper rotor, delivery size 80 mm complete confirming to IS 8034 latest version with all accessories and site requirement. Make: KSB, Crompton, Kirloskar or equivalent. Quantity, Size and rating shall be as per SOR.

52) SOR Item No. 80-81 (Vertical type water cooled Submersible Bore well pump set)

Supply, fixing, testing and commissioning and Supply & fixing of Vertical type water cooled submersible bore well pump set of capacity 20 HP, 730 LPM, 80 mtr. head 3Ph, 415 V, 50 Hz, AC supply with SS impeller, suitable size ISI marked submersible cable, copper rotor, delivery size 90 mm complete confirming to IS 8034 latest version with all accessories and site requirement. Make: KSB, Crompton, Kirloskar or equivalent. Quantity, Size and rating shall be as per SOR.

53) SOR Item No. 82-83 (Fully Automatic Star-Delta Starter)

Supply, fixing, testing and commissioning of mentioned, fully automatic star-Delta starter with digital voltmeter, digital ampere meter for submersible pump with overload current range as mentioned in SOR with single phase protection, Dry run, over voltage and under voltage, phase reversal. Make L&T, subtech, havells, C&S or equivalent. Quantity, Size and rating shall be as per SOR.

54) SOR Item No. 84-85 (GI Pipe B class)

Supply, fixing, testing and commissioning of GI pipe B class as mentioned in SOR complete. Quantity, Size shall be as per SOR.

55) SOR Item No. 86-87 (Copper Submersible Cable)

Supply, fixing, testing and commissioning of ISI marked PVC coated flat copper submersible cable complete. Quantity, Size and rating shall be as per SOR.

56) SOR Item No. 88-89 (Non Return Valve)

Supply, fixing, testing and commissioning of ISI marked non return valve as mentioned in SOR complete. Quantity, Size and rating shall be as per SOR.

57) SOR Item No. 90-91 (GI Elbow)

Supply, fixing, testing and commissioning of ISI marked GI Elbow of mentioned size complete. Quantity, Size and rating shall be as per SOR.

58) SOR Item No. 92-93 (GI nipple B class)

Supply, fixing, testing and commissioning of ISI marked GI nipple B class 100 mm complete. Quantity, Size and rating shall be as per SOR.

59) SOR Item No. 94-95 (MS flange)

Supply, fixing, testing and commissioning of ISI marked MS flange as mentioned in SOR suitable for 100mm & 80mm NRV & Gate valve complete. Quantity, Size and rating shall be as per SOR.

60) SOR Item No. 96 (Steel Wire Rope)

Supply, fixing, testing and commissioning of steel wire rope 8 mm dia braided wire with PVC coating complete with shackles for fixing of pump set during and after of lowering of pump set to avoid slippage. Quantity, Size and rating shall be as per SOR.

61) SOR Item No. 97 (MS flange on both side for joining)

Supply, fixing, testing and commissioning of MS flange on both side for joining 3" GI pipe of 20' long. MS flange having 3" inner dia and outer dia suitable for passing smoothly with 4 sq.mm double flat cable in 8" dia casing of bore well. Quantity, Size and rating shall be as per SOR.