

Electrical Installation and Estimating

6th Sem / EE

Full mark - 70

NO1. Answer all questions.

[2x10]

- (a) Give the full specification of 11 kV 'V' cross arm.
- (b) state the minimum ground clearance required for an 33 kV line while passing along the street.
- (c) state the size of batten required to carry 8 nos. of single core PVC wire.
- (d) what is circuit-breaker?
- (e) what do you mean by switch gear?
- (f) what are the types of wiring used in internal system.
- (g) what is the function of a lightning arrester.
- (h) why distribution boards are provided in an electrical installation?
- (i) where ECC conductor is used and why?
- (j) what is the different betⁿ action of a fuse and that of a switch?

NO2 Prepare a list of materials required for a LT single phase 3/4 wire OH system end pole structure erected in a street with stay arrangement. Give a neat sketch. [20] ~~[10]~~

NO3 prepare an estimate of material required for erection of a plinth mounted distribution substation for 11kV/415.240V 250 kVA capacity. ~~[10]~~ [20]

NO4 A duplex residential building has a connected load of 3 kW single phase 230V AC. It is required to make O.H service connection using insulated wire from the suppliers pole across the road at distance of 18m. Prepare an estimate of materials required. [30]

NO5 A consumer has a rice mill) wants to install a pole mounted substation of 100kVA, 11/0.4 kV. Prepare a list of materials with a neat sketch. [30]

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Answer all questions! [2x10]

- NO1 (a) what are the various types of cables used in internal wiring according to insulation.
- (b) what is a double pole main switch and where it is used.
- (c) what should be the position of energy meter and main switch.
- (d) what are bird guards and where they are used.
- (e) what are suspension type insulators and where they are used.
- (f) on the basis of operating voltage how the substations are classified.
- (g) what are the full forms of DPIC, TPIC, MCB.
- (h) why and where Vee guards are used.
- (i) where use of junction or joint boxes are selected.
- (j) what must be the clearance from buildings of low and medium voltage lines & service lines.

NO2 Estimate the quantity of materials required for the service connection to a double storied building having a load of 4kW at 230V, 50Hz. separate meters are to be provided for ground and first floor. Assume the distance between service pole and building 12m, and between service bracket & service board 10m. [25]

NO3 An over head, 3φ, 400V distributor is to be laid along a straight route 300m. Long the end supports are terminal poles with 50m span. In between prepare a list of materials. [25]

Q04 what are the various types of cables used in internal wiring, write general specification of cables. [25]