

**Central Public Works Department
Department Examination for
Assistant Executive Engineer (E)
Electrical Engineering Paper- II
(With Books)
2019**

Time: 3 Hours

Maximum Marks: 100

Note: Attempt any five questions. All question carry equal marks.

(Make your own assumptions wherever required and indicate them clearly in the answer sheet.)

1. A) Design Energy Efficient Central air conditioning system for OT and post operative care having a net area of 1,000 sq mtr (25 mtr X 40 mtr) of a Hospital as per provisions of NBC 2016. Provide Scheme, layout as well as requisite details like type of chiller plant, number and type of Pumps, capacity and number of cooling towers, No and type of AHUs etc. (15)
B) Also design energy efficient lighting for the above OT and post operative care unit including preparation of inventory, bill of quantity, wiring diagram and conduit layout. (05)
2. A) List out various E&M services as per NBC 2016 provided in the basement of a 15 storied building having a typical floor area of 3000 sq mtr.? Design general and escape lighting for this basement as per the provision of NBC 2016. What energy efficiency measures are proposed to make ventilation system of the basement energy efficient and fire safe? (15)
B) Design the external lighting for a 15 storey building having a façade area of 3000 sq.mt. and which is built on a plot area of 5000 sq mtr. Also propose power distribution system alongwith schematic diagram for the building including the single basement. (05)
3. A) List out provisions of Fire fighting in a fully air conditioned Non-Residential building of 25 floors with 2 basements as per provisions of NBC 2016 giving all required details. The typical floor area is 40 mtr X 50 mtr and plot size is 4000 sq mt . The shape of the plot is square. (05)

- B)** Work out the details of the fire fighting installation of the above building and based on these prepare detailed estimate for technical sanction. (10)
- C)** Prepare NIT on the basis of this technical sanction. (05)
- 4. A)** What are the factors considered for designing a Sub Station and working out capacity of DG Set for a fully air conditioned Non-Residential building of 20 floors with 2 basements as per provisions of NBC 2016. (07)
- B)** Draw the Line diagram of sub station and power distribution for the above building. How the sub station equipments for the above building will be selected and their rating will be decided? (07)
- C)** Prepare bill of quantities for the above sub station for call of tender giving all the sub heads. (06)
- 5. A)** What are the design factors for providing Lifts in a multi storey residential complex having 3 towers of 20 storey each with 3 houses on each floor (05)
- B)** What will be the Number of Lifts, Lift speed and capacity of Lift? (05)
- C)** Design a Fire Alarm System for this residential complex as per NBC 2016 along with schematic diagram. (10)
- 6. A)** Prepare Preliminary Estimate of E&M services for a 100 bedded Super specialty hospital having 10 floors of typical area of floor as 30 mtr X 40 mtr. (05)
- B)** Prepare detailed estimate based on the above preliminary estimate. (15)
