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BIEE-036

DIPLOMA IN ELECTRICAL ENGINEERING (DELVI)

Term-End Examination

June, 2016

00326

BIEE-036 : ELECTRICAL INSTALLATION AND SYSTEMS

Time : 2 hours *Maximum Marks : 70*

Note : *Question no. 1 is* ***compulsory****. From questions no. 2 to 8, answer any* ***four*** *questions. All questions carry equal marks. Use of scientific calculator is allowed.*

1. (a) In industrial wiring, why is surface conduit wiring system adopted ?

(b) What points need to be considered for the selection of fuse in industrial wiring ?

(c) What does a switch do ? What should be the features of a good switch ?

(d) What are the various types of lamp holders ?

(e) What is stay or guy wire ? Why is it used in low tension lines ?

(f) State any two effects of violation of safety limits of electrical equipments.

(g) What points are to be considered for the selection of pole for an overhead distribution line ? *7×2=14*

2. (a) What is a tender ? State the advantages of tender system. When does a tender become invalid ?

(b) Briefly discuss the earnest money and security deposits. *8+6=14*

3. (a) Explain the importance of specifications and give the detailed specifications of (i) Fluorescent lamp and (ii) Mercury vapour lamp.

(b) Briefly discuss the points to be considered for the selection of wires/cables in industrial wiring. *8+6=14*

4. (a) Draw the schematic and wiring diagram for the following electric lighting circuits :

(i) Control of two lamps from two switches

(ii) Control of one lamp from two places

(b) In a large factory shed, 300 numbers of fluorescent tubes each of rating 80 W by conduit wiring system is provided. Calculate the following :

(i) Total load on the installation in kW

(ii) Total current of the installation

(iii) Assuming supply voltage to be 240 V single-phase number of sub-circuits required

(iv) Rating of main switch and distribution board and number of distribution boards required.

Assume suitable data, if required. *6+8=14*

5. (a) Classify the types of wiring. Which type of wiring is suggested for domestic wiring ? Justify your suggestion.

(b) A 4 m × 4 m × 3·5 m high room in a building is to be provided with 2 lamps, 2 tube lights, 2 ceiling fans and two 3-pin socket outlets of 5 A rating by conduit wiring system. For this installation

(i) draw the installation plan and wiring diagram and also show the location of each point and switch board.

(ii) estimate the quantity of materials required for 8-point wiring. *7+7=14*

6. (a) Distinguish between a feeder, a distributor and a service main in a distribution scheme. Mention the advantages and disadvantages of overhead feeders.

(b) Show that with an increase in working voltage to n times, the cross-sections of a feeder and a distributor would be reduced to $\frac{1}{n}$ and $\frac{1}{n^2}$ of their respective values.

7+7=14

7. (a) Explain the method of overhead service connection to a multi-storied building.

(b) Draw a neat diagram of a 3-phase underground service connection. State its main components and functions. *7+7=14*

8. Write short notes on any ***four*** of the following : $4 \times 3\frac{1}{2} = 14$

(a) Storage and Supervision charges

(b) Specimen order for supply of air-conditioners

(c) General important rules for domestic wiring

(d) Various types of line supports

(e) Outdoor vs Indoor type substations

(f) Various types of switches and their specifications