

**DIPLOMA IN ELECTRICAL ENGINEERING
(DELVI)**

**Term-End Examination
June, 2015**

00386

**BIEE-036 : ELECTRICAL INSTALLATION
AND SYSTEMS**

Time : 2 hours

Maximum Marks : 70

Note : *Question no. 1 is compulsory. Answer any four questions from the remaining ones. Use of scientific calculator is allowed. All questions carry equal marks.*

1. Choose the appropriate one. 7×2=14

(a) Which type of earthing is used in rocky places ?

- (i) Rod earthing
- (ii) Pipe earthing
- (iii) Horizontal earthing
- (iv) Plate earthing

(b) In which type of wiring, is good protection from dampness provided ?

- (i) Cleat wiring
- (ii) Wooden capping and casing wiring
- (iii) Lead sheathed wiring
- (iv) Conduit wiring

- (c) Which of the following power distribution systems gives greater reliability ?
- (i) DC 3-wire system
 - (ii) AC 3-phase 4-wire system
 - (iii) Radial system
 - (iv) Ring main system
- (d) Earthing is done for
- (i) reducing the input current
 - (ii) safety of the equipment
 - (iii) safety of the operation
 - (iv) safety against the short circuit
- (e) Wiring clips are usually made of
- (i) Copper
 - (ii) Steel
 - (iii) Brass
 - (iv) Aluminium
- (f) In the case of distribution, the main consideration is
- (i) current carrying capacity
 - (ii) resistance
 - (iii) transmission voltage
 - (iv) voltage drop

- (g) Installation resistance is expressed in
- (i) Ohms
 - (ii) Mega-ohms
 - (iii) Micro-ohms
 - (iv) Milli-ohms
2. (a) Write any five ISI specifications pertaining to earthing of domestic and factory installations.
- (b) Distinguish between surface and concealed conduit wiring. $2 \times 7 = 14$
3. An ac squirrel cage induction motor of 15 HP, three-phase 400 volts, 1440 rpm with a star delta starter is to be installed at a distance of 22 m from the available ac mains as shown in the Figure 1.

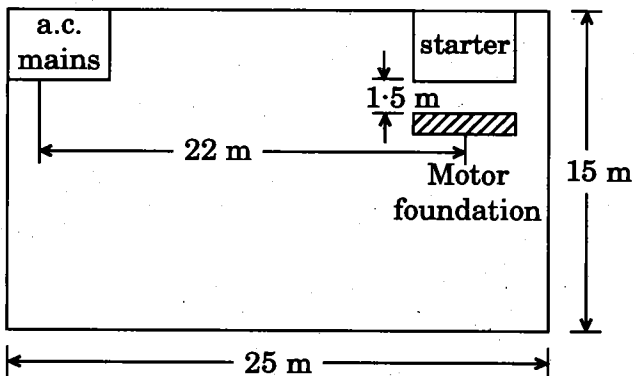


Figure 1

Show the layout of the wiring and estimate the quantity of material required.

14

4. (a) State the rules and regulations about conductor clearance and pole height.
- (b) Why are lightning arresters used in a substation ? $2 \times 7 = 14$
5. (a) Explain the factors you would consider for selecting a conduction for low tension line extension for a particular load.
- (b) What are the various types of substations ? Explain the scheme and components of any one substation. $2 \times 7 = 14$
6. (a) What are the objectives of a good air-conditioning system ? 4
- (b) Describe the working of a room air-conditioner and explain the electrical system with the help of a neat circuit diagram. 10
7. Write short notes on the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Overhead service connection versus Underground service connection
- (b) Factors to be considered for checking power installations
- (c) Electrical point method and Fixed percentage method
- (d) Selection of wiring schemes for domestic installation
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