22627

12526

3 Hours / 70 Marks Seat No. | | | | | | | | |

Instructions – (1) All Questions are *Compulsory.*

(2) Answer each next main Question on a new page.

(3) Illustrate your answer with neat sketches wherever necessary.

(4) Figures to the right indicate full marks.

(5) Assume suitable data, if necessary.

(6) Use of Non-programmable Electronic Pocket Calculator is permissible.

(7) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any FIVE of the following: **10**

a) Write the standard values as voltage levels used in Primary Transmission and Secondary Distribution system.

b) Define the following terms :–

i) Wiring diagram

ii) Single line diagram.

c) Discuss any two parameters for designing the power circuit in industrial installation.

d) State any two reasons for the necessity of transmission of electrical power.

e) State any two objectives of exterior lighting.

f) List any four things required by the estimator for estimate.

g) Write any two different methods of domestic installations.

Marks

2. Attempt any THREE of the following: **12**

a) Prepare a wiring diagram and schematic diagram of two lamps, one ceiling fan and one 6A socket outlet controlled by individual switches.

b) Discuss the general inspection is carried out of the domestic and commercial wiring installation.

c) Explain with neat sketch of services lines connection to two storey building.

d) Distinguish between industrial load and non-industrial load on following points :–

i) Electric supply needed

ii) Location

iii) Wiring system

iv) Protective systems.

3. Attempt any THREE of the following: **12**

a) Differentiate between quotation and tender on any four points.

b) Explain with neat sketch of how insulation resistance is tested between conductors.

c) Explain with neat sketch and step by step procedure to install 5HP, 3ph, 415V induction motor for agricultural pump to lifting water.

d) Prepare the list of material require for 1 km long LT (440/220V, 3ϕ) overhead distribution line, the span length is 50 meter. Make a neat sketch of one pole showing various component of the line.

4. Attempt any THREE of the following: **12**

a) A commercial hall whose dimensions are 12 m × 8 m is to be fitted with an electrical installation of load as mentioned below:

The load in the hall is 12 fluorescent lamps with 50 W each, 6 ceiling fans of 60 W each, 8 nos. of 6A socket outlet 100 W each, 2 nos. of 16A socket outlets 1000 W each. Assume the height of ceiling 5 m, wire is running at a height 2 m from floor. Estimate the quantity and cost of installation.

Marks

b) Prepare the material estimation and draw one line diagram of 7 HP, 415V 50 Hz induction motor installed in agricultural farm to drive tube well pump control cabin is 3 × 3 × 3 M size.

c) Explain with neat sketch of gas filled U/G cable with its two advantages and two dis-advantages.

d) Prepare the list of required material for O.H. line and write function of each components.

e) Discuss the importances of Background Brightness in sport lighting.

5. Attempt any TWO of the following: **12**

a) Prepare schedule of material and approximate estimation for industrial load as shown in Figure No. 1

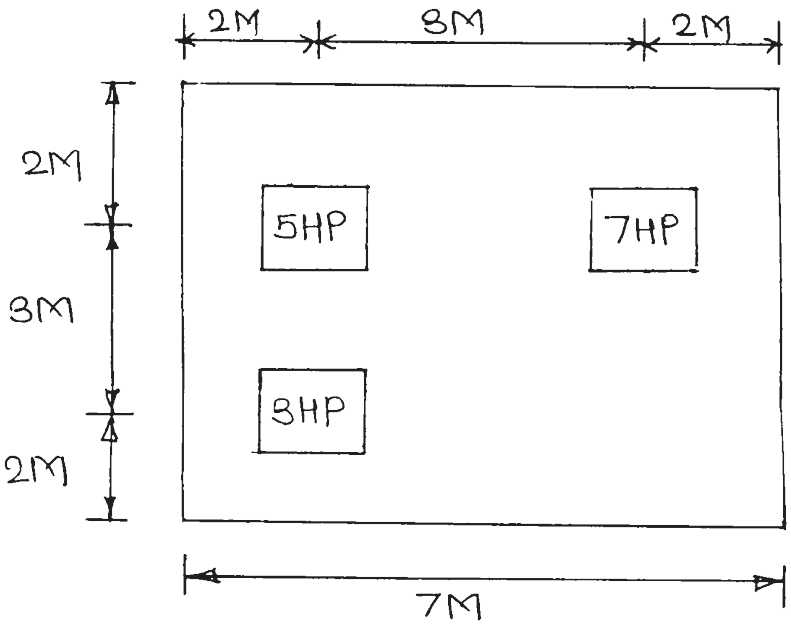

Fig. No. 1

b) Explain with neat sketch for any three types of Poles used for O/H conductor installation.

c) Design a street lighting scheme and estimate the material required for obtaining minimum level of illumination 0.6 lux, if a road 300 m long by providing illuminated 40W fluorescent lamps with 222 candle power the width of road is 4 m.

Marks

6. Attempt any TWO of the following: **12**

a) Explain the procedure to be followed by contractor to fill tender and explain the method of opening a tender.

b) i) Discuss the general precautions for lighting on playgrounds.

ii) Explain any five desired characteristics of electric signs used for advertisements.

c) Prepare an estimation of a residential premises at a height of 3 m which is as shown in Figure No. 2.

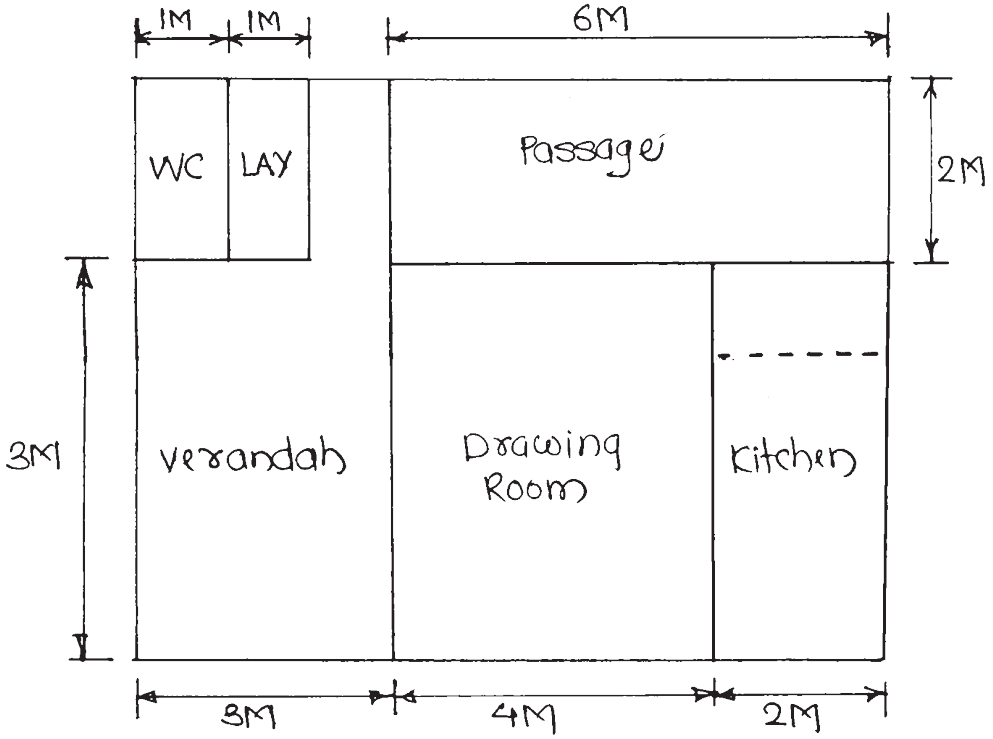

Fig. No. 2