

TED (10)–4001

Reg. No.

(REVISION—2010)

Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY—OCTOBER, 2012

BUILDING PLANNING AND DRAWING

(Common for CE, QS, EN and WR)

[Time : 3 hours

(Maximum marks : 100)

- [Note : 1. Question No. II is compulsory.
2. Missing data can be suitably assumed.
3. Drawings shall be neat and fully dimensioned.
4. A₂ size drawing sheets to be supplied.]

PART—A

Marks

I Answer all questions in one or two sentences. Each question carries 1½ marks.

1. What is meant by a service road ?
2. Briefly explain 'tenement'.
3. Write any three classification of building, based on their occupancy.
4. Define floor area ratio.
5. Write down the minimum area of a bath room as per building rules.
6. How buildings are oriented ?
7. Write different types of roofs.
8. Write any two specification, while a site plan is prepared for development permit.
9. Define 'Ramps'.
10. Write the minimum horizontal clearance for overhead electrical lines in the following cases :
 - (i) Low and medium voltage lines.
 - (ii) High voltage lines up to 33000 volts.

(10×1½=15)

PART—B

II (a) Prepare and draw the line plan of a residential building from the following data :

- (i) Size of land — 19.60 m × 22.00 m
 (ii) Covered area — 172.00 m².

The plot faces North and there is a 6.0 m wide street in front of the plot.

Proposed sizes of rooms etc, are derived at by calculating the total area equal to the permissible covered areas :

- | | | | |
|-------------------------|---|--------------------------------------|----|
| 1. Drawing and Dining | — | 42 m ² | |
| 2. Bed room | — | 16 m ² | |
| 3. Master bed room | — | 20 m ² | |
| 4. Kitchen | — | 9 m ² | |
| 5. Pantry | — | 6 m ² | |
| 6. Bath, W.C. and Lobby | — | 18.40 m ² (4.00 × 4.60 m) | |
| 7. Front verandah | — | 2.5 m wide | |
| 8. Rear verandah | — | 3.00 m wide. | 25 |

(b) The line plan shows the layout of an office building. Develop the fully dimensioned : (Plan on 4th page)

- (i) Plan with roof line 15
 (ii) Section along A—A. in suitable scale. 15

Specifications :

Bed concrete PCC 1:5:10 — 80 cm × 20 cm.

Foundation R.R. Masonry in cm 1: 8 — 60 cm × 90 cm.

Basement R.R. Masonry in cm 1: 8 — 45 cm × 45 cm.

Super structure :

Brick in cm 1 : 6, 20 cm thick.

Rear verandah has brick pillars of 20 cm × 20 cm size.

Supporting bressumers of size 9 cm × 12.5 cm.

Roof is sloping with rise of $\frac{1}{3}$ rd span ; MP tiles.

Height of main wall is 360 cm above floor level.

The roof frame consists of wall plates, hip and vally rafters, ridges and rafters.

Eaves projection is 60 cm

Front verandah has a RCC flat roof 10 cm thick, supported on walls, columns and beams.

III Draw to a suitable scale the elevation of a fully panelled (double leaf shutter) door with the following details :

| | | |
|----------------------------------|---|-----------------|
| Number of panels in each shutter | — | 3 nos. |
| Size of door | — | 119 cm × 210 cm |
| Door frame | — | 10 cm × 6 cm |
| Style | — | 10 cm × 4 cm |
| Top rail | — | 10 cm × 4 cm |
| Bottom rail | — | 20 cm × 4 cm |
| Lock rail | — | 18 cm × 4 cm |
| Thickness of panel | — | 2.5 cm. |

15

OR

IV The details of a single collar roof is given below :

| | | |
|------------------|---|----------------|
| Clear span | — | 3.6 m |
| Collar | — | 4 cm × 12.5 cm |
| Common rafter | — | 5 cm × 12.5 cm |
| Wall thickness | — | 30 cm |
| Wall plate | — | 15 cm × 10 cm |
| Eaves projection | — | 60 cm |
| Ridge piece | — | 8 cm × 20 cm |

Draw to a suitable scale the elevation of the single collar roof.

15

V Draw the half sectional elevation of an RCC slab culvert with the following details :

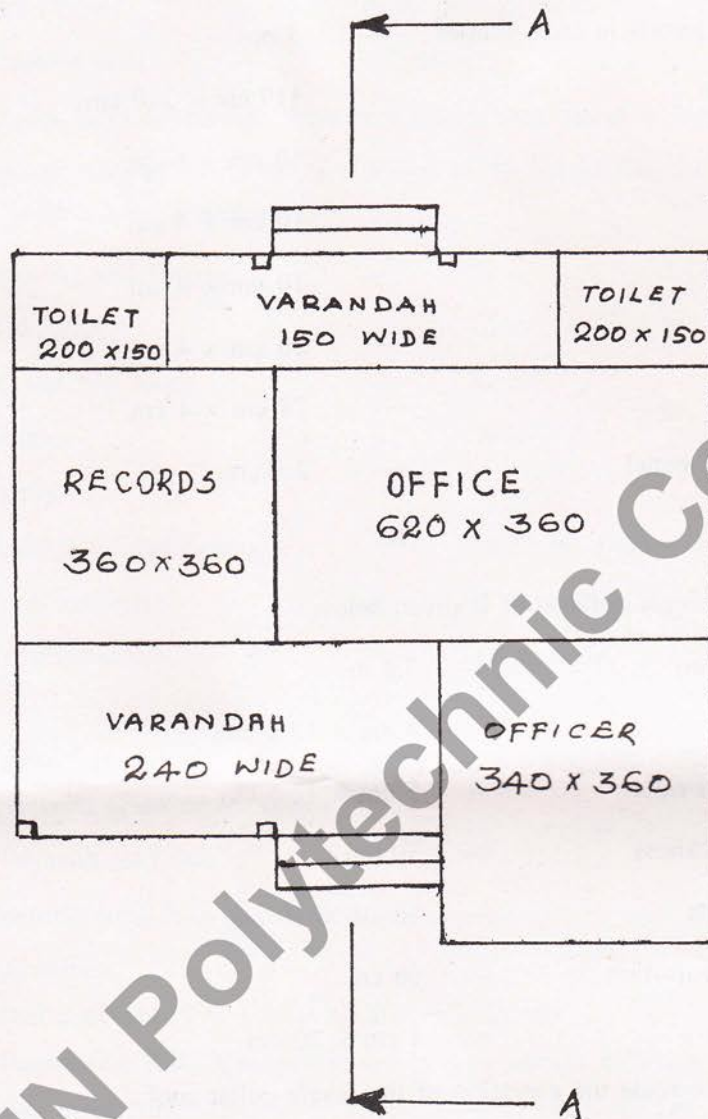
| | | |
|---------------------------------|---|--|
| Span | — | 200 cm |
| Bed level of stream | — | + 12.00 m |
| Foundation level (Bottom level) | — | + 10.80 m |
| Road level | — | + 14.00 m |
| Foundation concrete | — | P.C.C. 300 mm thick |
| Thickness of abutment | — | 400 mm |
| Thickness of R.C.C. slab | — | 200 mm, over which a wearing coat 100 mm thick. |

The returns are square projecting 1250 mm from the earth face of the abutment.

15

OR

VI Draw the plan showing the sewerage connections of given building of question II (b). 15



INDEX

| | | |
|----------------|-------------|------------------|
| D ₁ | - 100 x 210 | - FULLY PANELLED |
| D ₃ | - 70 x 210 | - FULLY PANELLED |
| W ₁ | - 150 x 140 | - FULLY GLAZED |
| W ₂ | - 100 x 140 | - FULLY GLAZED |
| V ₁ | - 100 x 50 | - " " |

DIMENSIONS ARE IN CM