



UNIVERSITY OF RUHUNA

Faculty of Engineering

End-Semester 6 Examination in Engineering: November 2016

Module Number: CE6301

Module Name: Construction Processes and Technology

[Three Hours]

[Answer all questions, each question carries twelve marks]

Q1.

- a) Site leveling prior to setting out of any building is a mandatory work. Briefly explain the procedure of site leveling with necessary sketches. [3.0 Marks]
- b) Explain the procedure of establishing the position, size, shape and level of a building during the setting out process. Identify the necessary instruments. [3.0 Marks]
- c) Assume that you are required to set out a building plan shown in Figure Q1 (a). The building line is 3.0 m away from the boundary of the main road and 2.0 m away from the boundary of the secondary road. From the other two boundaries of the land minimum 1.5 m clearance should be provided with the external building walls. (Use pages 3 and 4 of the question paper when answering and attach those pages to the answer booklet).
- i Marking all the necessary reservation, sketch the building plan on the given land in Figure Q1 (b) with suitable orientation. Give reasons for your selection. Marking of external wall positions are sufficient.
- ii Mark the positions of necessary corners/reference pegs and profile boards on the house plan shown in Figure Q1 (a). [6.0 Marks]

Q2.

- a) Explain factors affecting the selection of a material type for walls of a building. [2.0 Marks]
- b) Describe the construction procedure of a brick wall. [2.0 Marks]
- c) Draw the brick laying pattern for two layers for the following (Use the graph sheets provided).
- i 225 mm thick brick wall at a corner using English bond
- ii 225 mm thick brick wall at a corner using Heading bond
- iii 225 mm thick brick wall at a corner using Flemish bond [6.0 Marks]
- d) List causes for dampness in brick walls and discuss preventive measures. [2.0 Marks]

Q3.

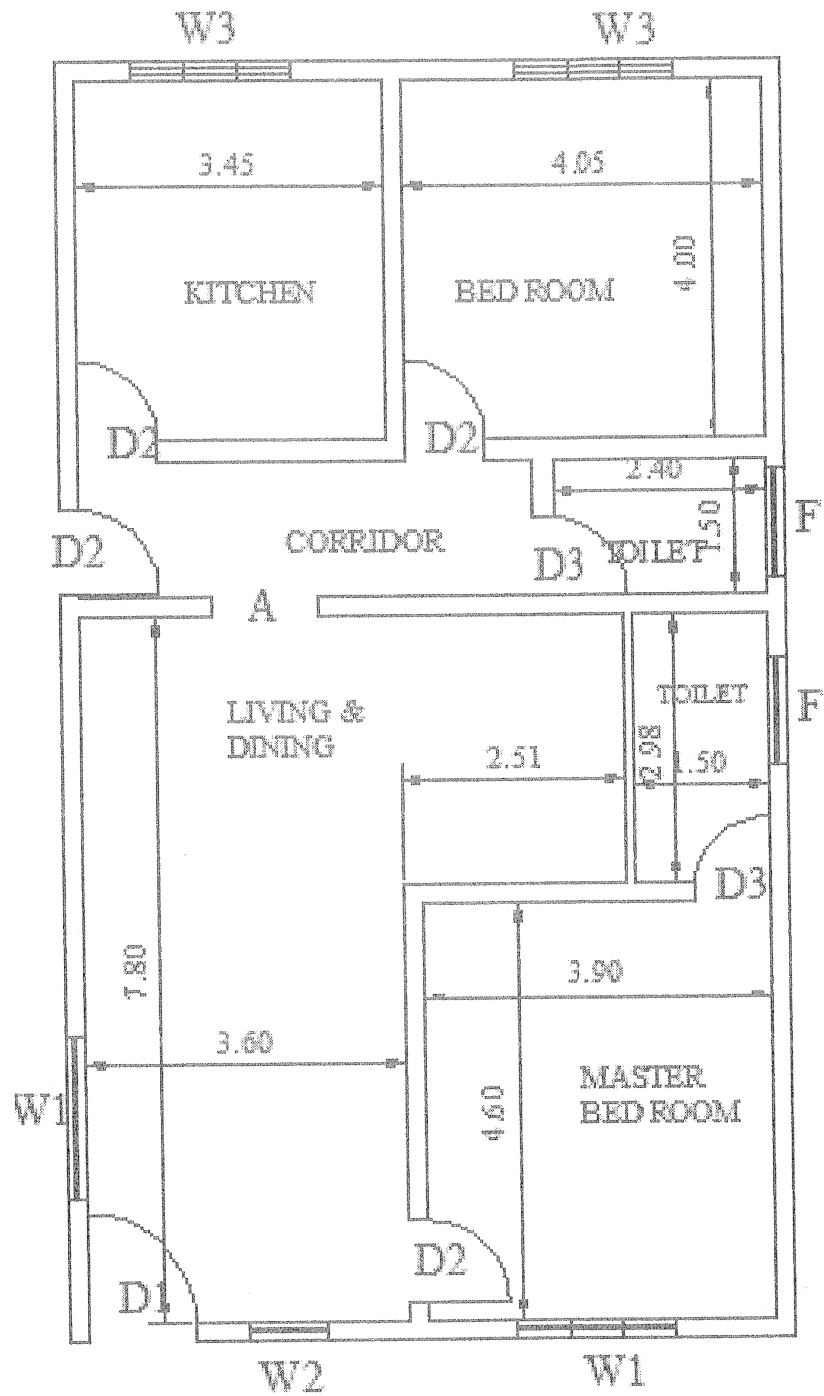
- a) List four factors that have to be considered for physical site organization for a construction project and discuss two of them very briefly. [4.0 Marks]
- b) Explain the advantages of using following site documents. [4.0 Marks]
- i Method Statement Sheet
 - ii Site Diary
- c) What are the safety precautions that you can incorporate with your site layout planning to provide safe working environment? [2.0 Marks]
- d) A five-storey building project is handled by a project manager. Total project duration is about 18 months. Under the project manager, a site engineer, a store keeper and a clerk are employed. A technician is employed to assist the site engineer and he will supervise all the foremen's work. Considering these details, sketch the site organizational chart for this project. [2.0 Marks]

Q4.

- a) Design a suitable Calicut tile roof for the house shown in Figure Q4. Your answer should include details of the main elements, lengths and spacing. (Use page 5 of the question paper when answering the question and attach it to the answer booklet). All half brick walls are constructed upto the ceiling height only and roof slope is 30° . Roof projection is 1 m from the external walls. Wall thicknesses are 225 mm and 115 mm for larger walls and smaller walls respectively. [7.0 Marks]
- b) What are the visible indications of a good Calicut tile? [2.0 Marks]
- c) What are the influencing factors to select a door frame and a door shutter? [3.0 Marks]

Q5.

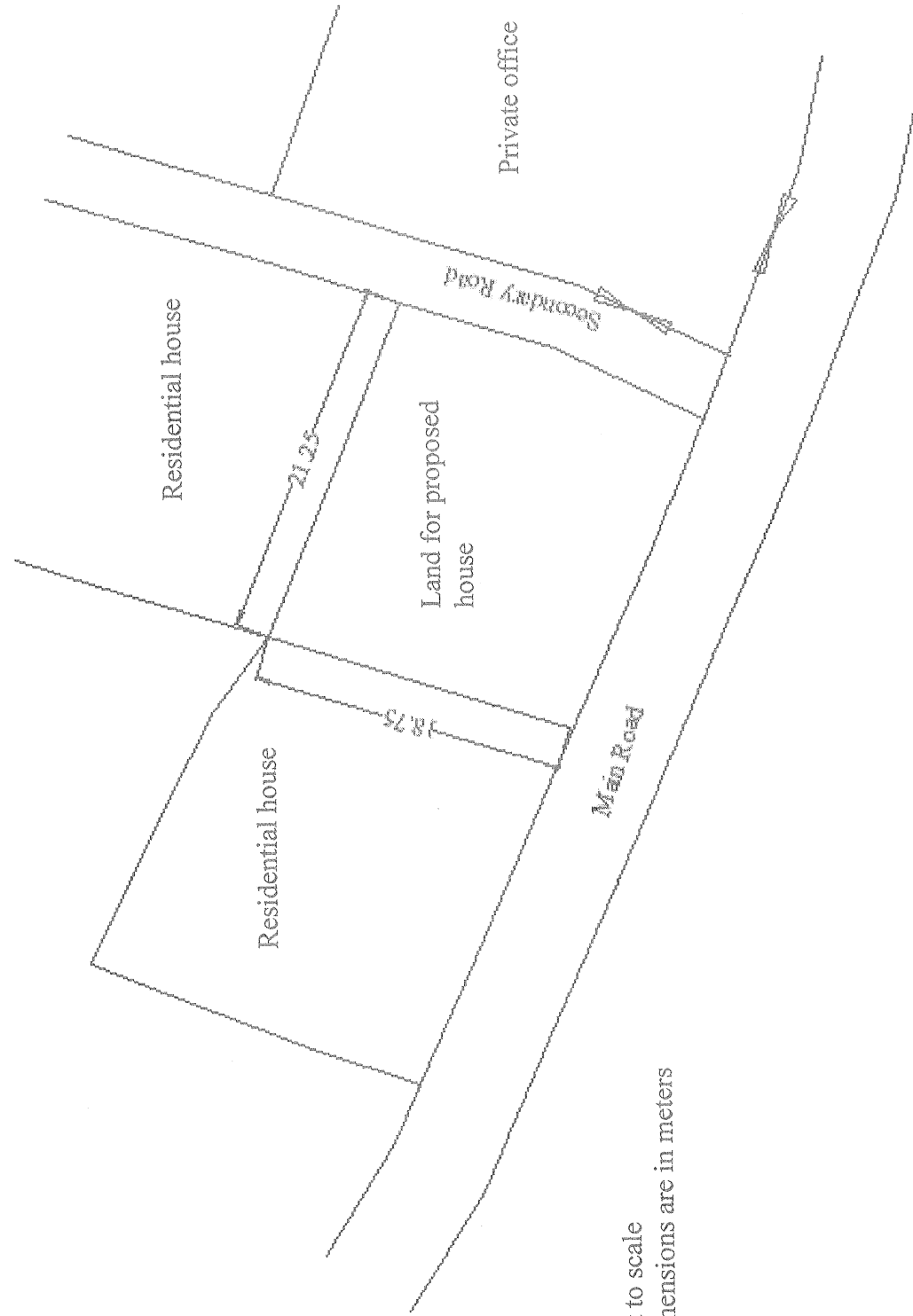
- a) According to the Factory Ordinance, in which nature accidents are to be informed to the District Factory Engineer? [3.0 Marks]
- b) Explain why the construction industry is experiencing many accidents. [3.0 Marks]
- c) What are the direct and indirect costs associated with an accident in a construction site? [3.0 Marks]
- d) Explain the benefits of improving health and safety in construction sites for a contractor. [3.0 Marks]



Dimensions are in meters

Figure Q1(a): Proposed House Plan

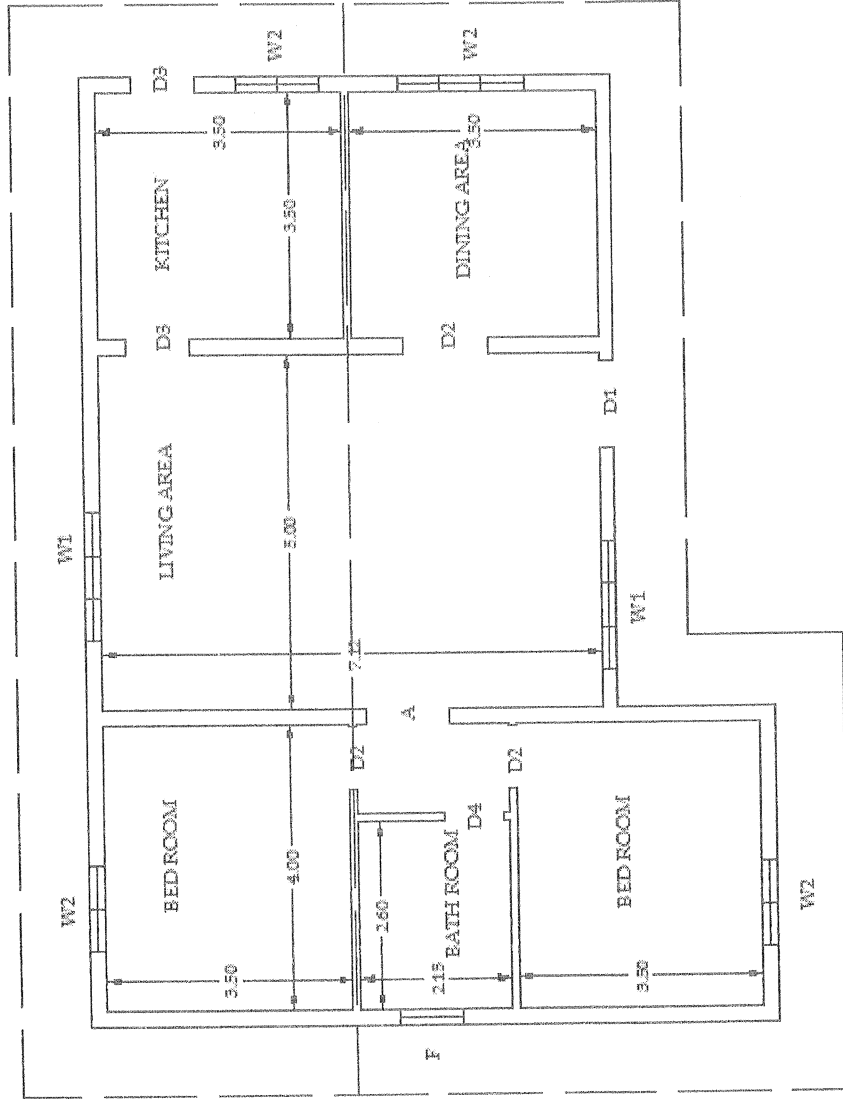
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Not to scale
Dimensions are in meters

Figure Q1 (b): Land for the Proposed House

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Dimensions are in meters

Figure Q4: House Plan for Roof Designing
Page 5 of 5