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Paper = Computer Aided Building  
Modeling and Design:

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Q NO :

1

(a)

1 - Selecting object by picking ✓

You can pick object when AutoCAD ask you to select objects

2 - Et Cross Window Selection ✓

Basically if your window selection defined from right to left, then it will ~~select~~ be cross window selection. It will select all elements inside and touching the window.

You can override to activate cross window selection by typing C then [enter].

(b) Unit Setting ✓

Unit Setting are groups of related units including majors and minors. They are used to define a path of study undertaken to ensure the satisfactory progression through and completion of your course attempt.

When you enroll in a course, at least one primary unit set is

(3)

applied to the course attempt to further define your intended path of study.

The effect of the different unit types on two angular units values.

Throughout history, angles have been measured in many different units. These are known as angular units, with the most contemporary units being the degree ($^{\circ}$), the radian (rad), and the gradian (grad), through many others have been used throughout history.

Q No
2
(a)

Floor plan :-

A floor plan is a drawing of the rooms and spaces in a building with a view looking downward from above.

* Floor plans are used by builders, plumbers, electricians and joiners to help plan the construction work and cost the building materials.

* The scale of a floor plan depends on the size of the building but for most domestic buildings a scale of 1:50 is used.

"Components in floor plan"

* There are 4 components of floor plans

- * Column to column dimensions
- * Door, window and other dimensions
- * Room tags
- * Furniture layout

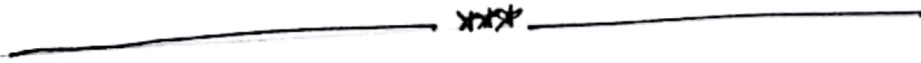
These components are individually shown on the same floor plan and then printed on separate sheets of a drawing set for easy communication.

- All of these components can be merged in one plan and can be printed on a single sheet rather than on multiple sheets: e.g. one plan having dimensions, room tags and furniture layout all together depending on the clarity and size of sheets and complexity of the project.
- In order for the client to easily understand and read these drawings all the above mentioned plans are printed separately.

(b) Site plan :

- A Site plan (also known as a block plan) is a view looking down at a building from above, illustrating the site boundary and the outline of the new building which are highlighted in the location plan.
- Paths, roads neighbouring plots are also shown. This type of plan enables the builders to make out of the site, lay drainage pipes and build manholes. It provides information about the site's topography, utilities, site work etc.

- "The important of Site plan"
- * It illustrated the existing natural features such as trees and also existing build features.
 - * The building outline, including the roof.
 - * The main dimensions of the house and site.
 - * Drainage pipes and manholes which run from the bathroom and kitchen to the main drain under the road.
 - * The position and orientation of the house on the site / plot.
 - * Contour lines which show the Sp slope of the land.



Q No
3
(a)

Foundation :-

Foundation is the lower portion of a building structure under column and walls that transfers the buildings gravity load into the soil underneath foundation.

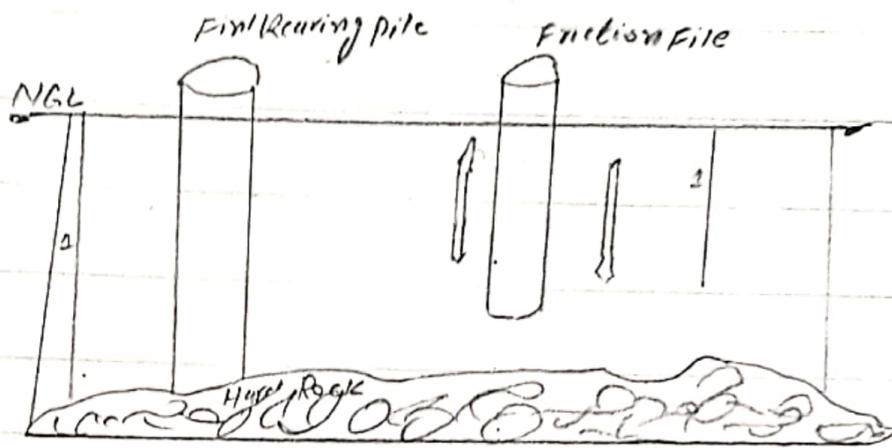
"Types of Deep foundation"

Deep foundation means as the name suggested the foundation will be penetrated through the weak soil layer at a great depth and supported on top of strong soil layer or on the rock.

- * pile Foundation
- * Caisson Foundation
- * Drilled Shaft foundation

① pile foundation :- pile means the vertical member or a column of material which will be driven by a pile driver and penetrated through great depth. pile foundation is used to transfer heavy loads of structure through columns to a hard rock strata which is

much deep below the ground level where shallow foundations such as spread footings and mat footings cannot be used.



② Caisson Foundation

Caisson is a prefabricated hollow box or cylinder sunk into wet or unstable ground to some desired depth and then filled with concrete thus forming a foundation.

③ Drilled Shaft foundation

These type of foundations are used in bridges and large structures such as metro train projects. Pier is typically dug out and cast in place using

Forms :

- Step 1 ————— Drilling the shaft
 Step 2 ————— placing the ~~shaft~~ Casing
 Step 3 ————— pouring the concrete.

(b) Differentiation between :

* Piling and Footing :-

A structure need a foundation that supports it if the structure is build on a soil that has bearing capacity which can withstand the weight of the whole structure, then you can design the foundation on footings alone.

But if the soil is WEAK, you need piles to penetrate further the soil to have greater bearing strength.

* Foundation and Footing

A footing is the part of foundation or a foundation unit in brick work masonry or concrete under the base of walls or columns for the purpose of distributing the load over a large area.

QNO
4

Isolating Footing :-

Isolating footing are one of the most economical types of footings. Sometimes, it is stepped to spread the load over a larger area.

They are used in the case of light column loads, when columns are not closely spaced and are spaced at relatively long distances.

When footing is provided to support an individual column then isolated footing is used.

"Types of Isolated Footing"

There are various types of isolated footing

Such as ;

- * ~~Flat~~ Flat Footing
- * Slope Footing
- * Step Footing

① Flat, PAD OR plain Footing :-

It is constructed under each column independently and is usually square, rectangular or circular in shape.

(11)

The thickness of flat isolated footing is uniform. It is provided so as to reduce the bending moments and shearing forces at their critical section.

② Sloped Footing :-

Sloped or trapezoidal footings are designed and executed with utmost attentions to maintain a top slope of 45° from all sides. The amount of reinforcement and concrete used in the sloped footing construction is less than that of plain isolated footing. Therefore it decreases the utilization of concrete and reinforcement.

③ Stepped Footing :-

Previously, the construction of this type of isolated footing was popular, but its application has declined nowadays. It is generally used in the construction of residential buildings.

(b) Difference between a pile foundation & an ordinary Foundation:

Pile foundations are typically much deeper than they are wide, this means that their ability to resist loads is mainly derived from the vertical friction of the side of the pile against the soil (skin friction). However it should be noted that a number of closely spaced piles will act as a group and as such can also have significant resistance to loads by end bearing.

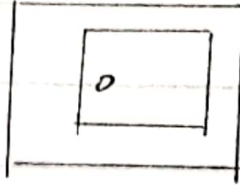
Regular foundations rely on the bearing pressure between the soil and the underside of the foundation, they are cheaper and more common. Piles will be used when greater forces are cheaper needed to be transferred to the ground over a smaller area, such as with high rise buildings and those in densely built up areas where land comes at a premium and ground movement will affect neighboring buildings.

Q5 Working Drawing?

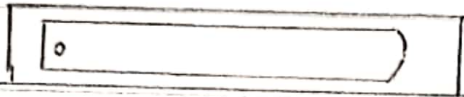
(A) A scale drawing of an object to be made or structure to be built intended for direct use by the workman.



Sink unit



Basin



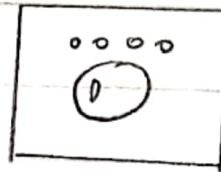
Bath



Toilet



Basin (side)



washing machine



shower head



Towel rail



Rotary pump

compressor of fan



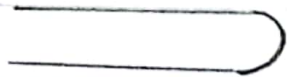
Bath side



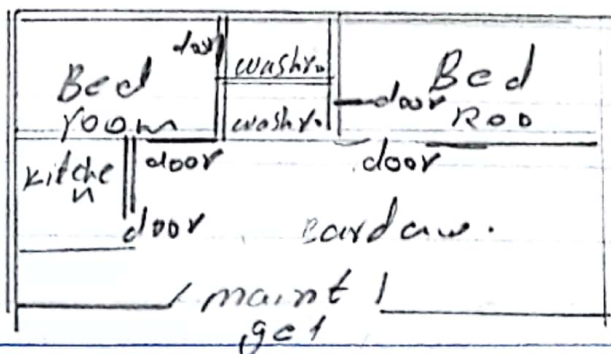
Water surface



End view



Pipe coils



Q(5)

(b)

Civil Engineering drawing.

- " " A sketch diagram plan used to design construct and document buildings and other structures.
- " The drawing may be used to indicate the overall appearance inside or outside the structure or they may be used to indicate precise measurements and details for construction.
- " Describe form and construction of building component.
- " It is the base drawing for other construction works such as electrical sewage mechanical

↳ Architectural Drawing ↴

- ↳ Detail drawings provide a detailed description of a part of an object such as a building bridge tunnel machine plant and so on. They tend to be large-scale drawings that show in detail parts that may be included in less detail on general arrangement drawings.
- " these drawings are also known as blow ups.

END OF PaPer

