

IQRA NATIONAL UNIVERSITY  
OF PESHAWAR

B.tech

CIVIL

BTCH

2015

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12430

NAME

DANISH

KHATTAK

Final term

Computer Aided Building

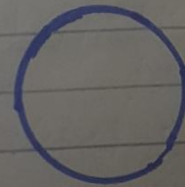
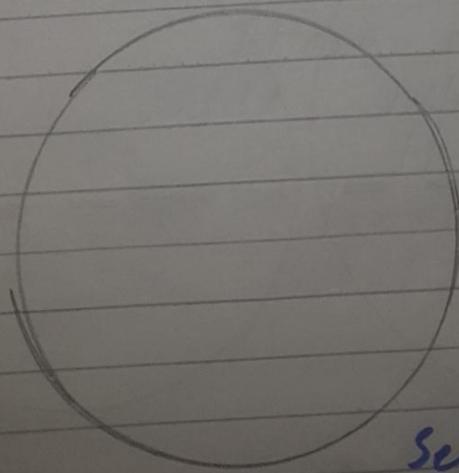
Modeling design

Question No 4

part "A"

Selecting object by picking.

→ perhaps the most obvious way to select an object is simply to pick it. To select an object, place the pick - box over part of the object and left click the mouse. When the object has been picked, it is highlighted in a dashed line to show that it is part of the current selection and the Command line reports "1 found"

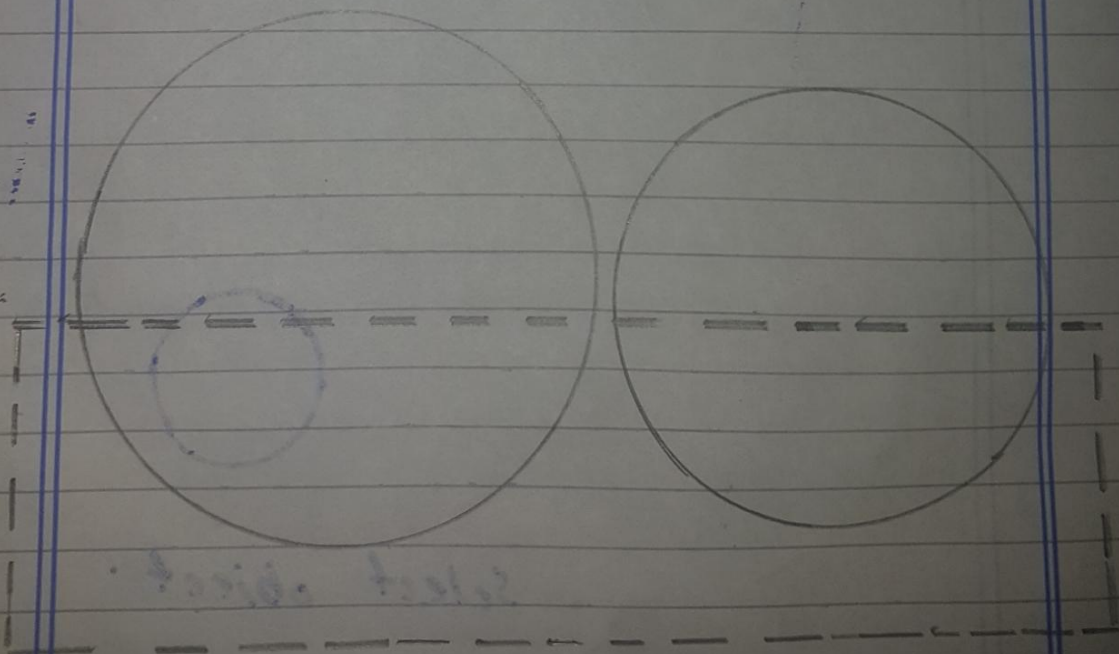


Select object.

## CROSSING WINDOW

### SELECTION :-

→ The crossing window option is invoked by typing  $\llcorner$  at the "select object" prompt and is variation of the window command. The command sequence is exactly the same but objects are selected which lie within the window and those which cross the window border.



The cross window selection box is shown as a rectangle with a broken line.

part "B"

## UNIT SETTINGS

→ Notice that when you change the unit type, the coordinate display on the status bar changes to show co-ordinate using the current unit type. unit such as "Architectural" and "Engineering" are mainly for AutoCAD user where Feet and inches are still in common use.

## ANGLES

looking at the Drawing Unit dialogue box again, you will notice that there also five angular unit types. The default is decimal degree, but there other option. The table below show the effect of the different angular unit types on two values.

# ANGLES

	Unit type	12.5 Angular U	180 Angular U	Description
→	Decimal Degree	12.500	18.000	Metric unit.
→	Deg/Min/Sec	12d30'0"	180d0'0"	Degree, minutes and second.

## Part "A"

~~Definition~~ :-

floor plan :-

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

→ It is a typical of sectional view of the building with a horizontal plan cut through a building from above 5 Feet to show.

## Components in Floor plan

There are four components of floor plans.

- \* Column to Column dimension
- \* Door, window and other dimensions
- \* Room Tags
- \* Furniture layout.

→ These components are individually show on the same floor plan and printed on separate sheet 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 sheet 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.

→ Elevation are orthographic projection of building **OR**

→ It is view of a building's exterior perpendicular of the principle vertical surface.

→ Elevation are required by the local planning department to assess whether the style and proportion of proposed building are appropriate for the location. Builders also need a picture of what the house will look like from outside.

part "B"

Def:- Site plan

⇒ A site plan (also known as 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 and neighbouring plots are also shown. This type of plan enables the builder to mark out the site layout, drainage pipes and building manholes.

⇒ It provides information about the site topography, utilities, site works etc.

**importance of site plan:**

→ It illustrates the existing natural features such as trees and also existing built features.

→ The main dimension of the house and site.



- Drainage pipe 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 line which show the slope of the land.

### The Scale of site plan:

It depends on the size of the building. For houses and small building a 1:200 scale is used.

# Question No 3

## part "A"

Define :-

Foundation :-

The lowest load-bearing part of building typically below ground level.

## Type of deep foundation.

Deep foundation is required to carry loads from a structure through weak compressible soil or soft rock to stronger and less compressible rock at depth or joint regions.

### Six types

- \* Basement
- \* Buoyancy rafts (hollow box foundation)
- \* Caissons
- \* Cylinders
- \* Shaft foundation
- \* Pile foundation

## 1. Basement Foundation:

These are hollow substrates designed to provide working or storage space below ground level.

## 2. Buoyancy Rafts:-

Buoyancy Raft are hollow substrate designed to provide a buoyant or semi buoyant substrate beneath which the net loading on the soil is reduced to the desired low intensity.

## 3. Caissons Foundation:-

Caisson are hollow substrate designed to constructed on or near the surface and then sunk as single unit to their required level.

## 4. Cylinder -

Cylinder are small single cell caissons.

## 5. Drilled shaft foundation.

Shaft foundation are constructed when deep excavation supports by lining.

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## pile foundation

pile foundation are relatively long and slender members constructed by driving preformed unit to the desired founding level.

## part "B"

### A:- Piling and footing

pile foundation are capable of bearing higher load than spread footing. there are two type pile foundation and each work in its own way. In end bearing piles the bottom end of the pile rest on a layer as especially strong soil work.

### B:- Foundation and footing

The footing is formation which is in contact with the ground. Foundation structure which transfer its gravity load to earth from superstructure. Foundation types include piles, caisson, footing, piers, the lateral support and anchors.

## Question No 4

### PART A

#### Isolated footing:-

(also known as pad or spread footing) are commonly used for shallow foundation in order to carry and spread concentrated loads caused by example columns or pillars isolated footings.

There are various type of Isolated footing such as:

- Flat Footing
- Slope "
- Step "

#### Type of Isolated Footing

#### FLAT, PAD OR PLAN FOOTING.

It is constituted under each column independently and is usually square, rectangular or circular in shape. The thickness of flat isolated footing is uniform. It is provided so as to reduce the bending moment and shearing force and circular section.

## **SLOPED FOOTING:-**

Sloped or trapezoidal footing are designed and executed with utmost attention to maintain a top slope 45 degree from all side. The amount of side 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.

## **STEPPED FOOTING**

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

## **STRAP FOOTING:-**

It consist of two isolated footing connected a structural strap or lever. The strap connect the footing

Such that they behave as one unit the strap simply act as a connecting beam.

## MAT OR RAFT FOOTING

It is a large slab supporting a number of columns and wall under entire of structure large part of the structure

## PART 'B'

## pile Foundation and ordinary foundation

→ pile means the vertical member or a column of material which will be driven by pile driver and penetrated through great depth

→ This is also used to prevent uplift of structures due to lateral loads such as earth quake and wind force.

→ use of pile foundation also prevent differential settlement of foundation.

## Question NO 5

### Working Drawing

- Civil Engineering Drawing
- Architectural " "
- Detail " "
- Landcap " "
- As built " "
- shop " "

### → Civil Engineering Drawing.

A sketch diagram plan used to design construct and document building and other structure.

→ Describe form and construction of building component.

→ It is the base drawing from other construction work such as electrical sewage mechanical.

### Architectural drawing.

Detail drawing provide a detail description of part of an object such as building bridge.



tunnel machine plan that so on they tend to be large-scale drawing that show in detail part that may be included in detail less detail on general arrangement drawing.

### Detail drawing

Architectural drawing made during the construction process recording differences b/w original design and the completed structure.

### As-built drawing:-

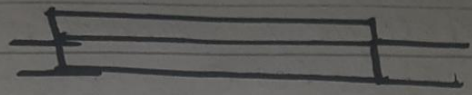
→ It is drawing produced by contractor supplier manufacture subcontractor or fabricator.

→ Shop drawing are typically required for prefabricated component.

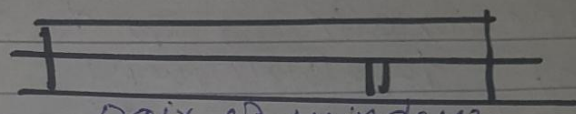
### Shop Drawing:-

Shop drawing are not produced by architects and engineer under their contract with the owner.

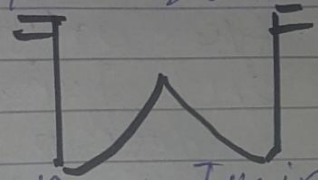
# The Symbols Used in Floor Plans



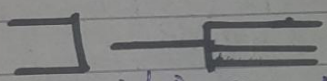
Window



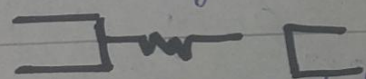
Pair of Window



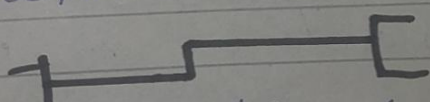
French or Twin Door



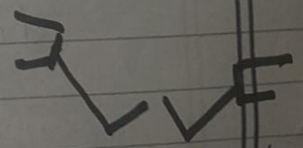
Sliding Door



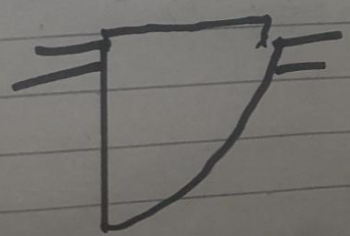
Accordion-Fold Door



Pocket Doors



Bi-Fold Door



Regular Door

## Question 5

### part "B"

Compare Civil Engineering and Architectural.

The involved in planning and designing building and structure. However Architectural focuses more on the spatial functionally and aesthetics of development work and more concerned with the artistry look feel and functionally of the design while civil engineering concentrates on the structural element of the design, making certain that the structure can endure normal and extreme condition you can check below the different civil

Civil engineering and Architectural.