KATHMANDU UNIVERSITY
DEPARTMENT OF CIVIL ENGINEERING

Lecture-I

Engineering Drawing
EDRG 101

DRAWING SHEET LAYOUT

10mm

20mm

10mm

Title Block

10mm
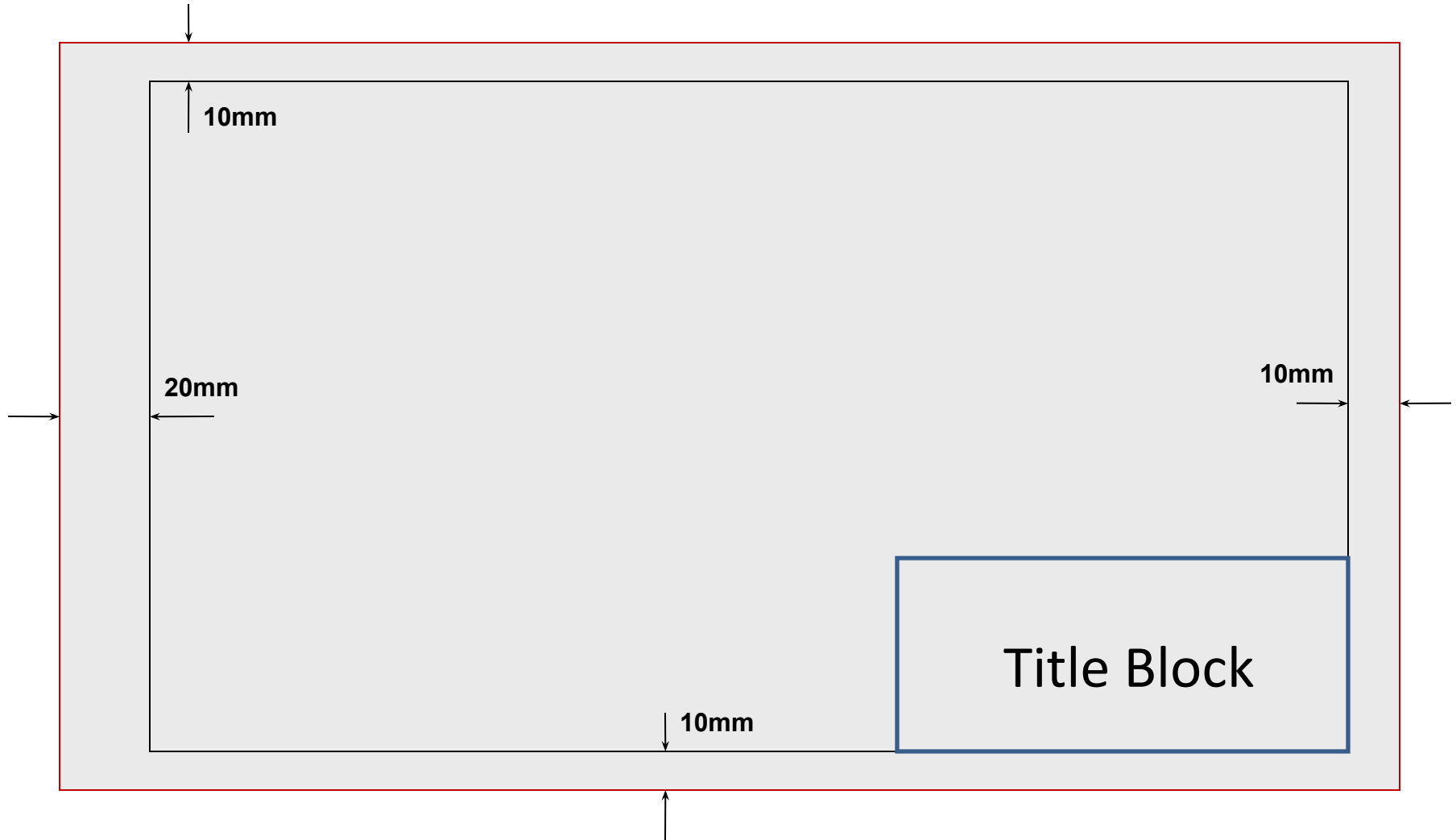
TITLE BLOCK

70mm 100mm

All dimensions are in mm

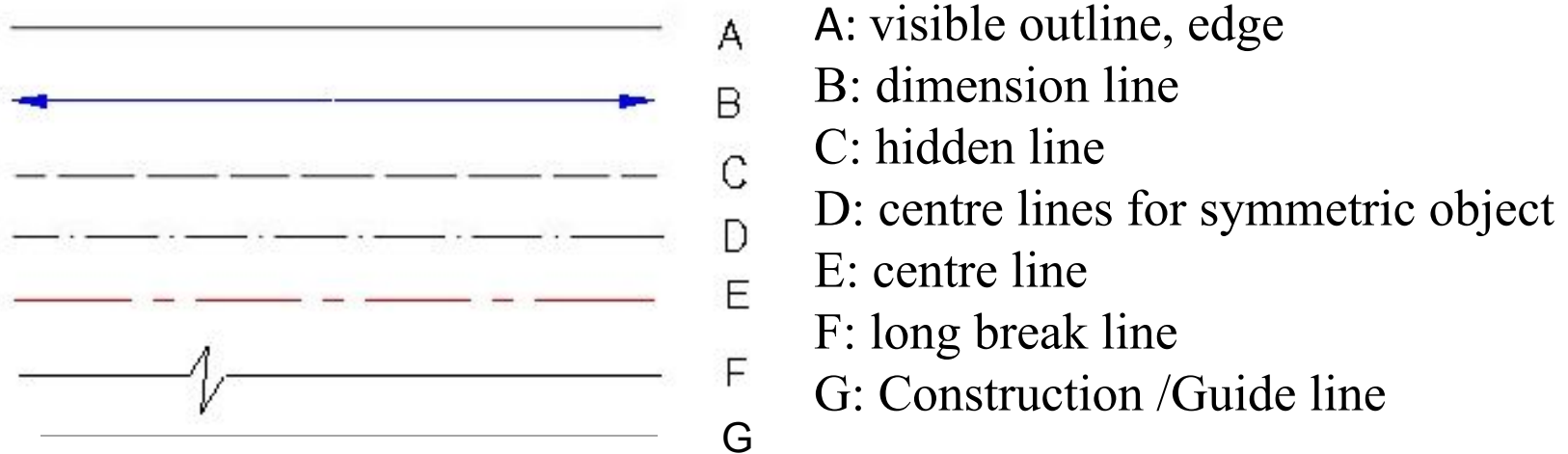| NAME	INSTITUTION	
ROLL NO.:	(JOB TITLE)	
GROUP:	SYMBOL	GRADE
SCALE		CHECKED BY:
DATE		SHEET NO.:

50mm

50mm

170mm

LINES

- Engineering drawing uses lines to represent the features of an object
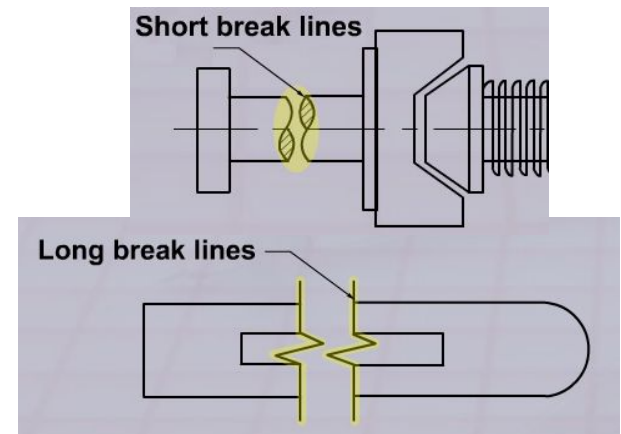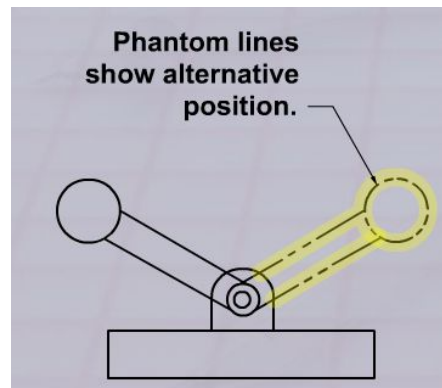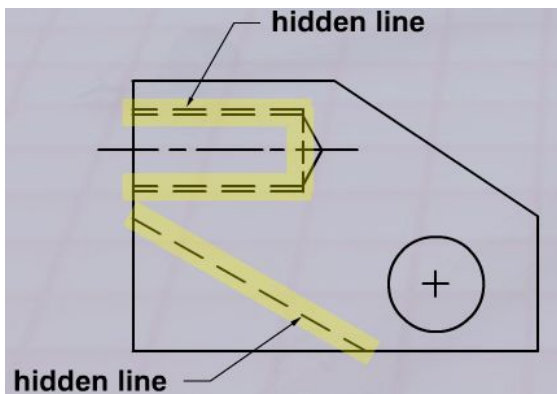
- Features imply the surface and edge of the object

DRAWING LINES

A: visible outline, edge
B: dimension line
C: hidden line
D: centre lines for symmetric object
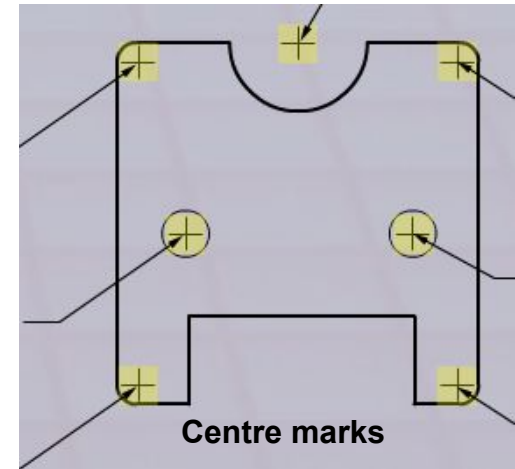E: centre line
F: long break line
G: Construction /Guide line

Inking technique:
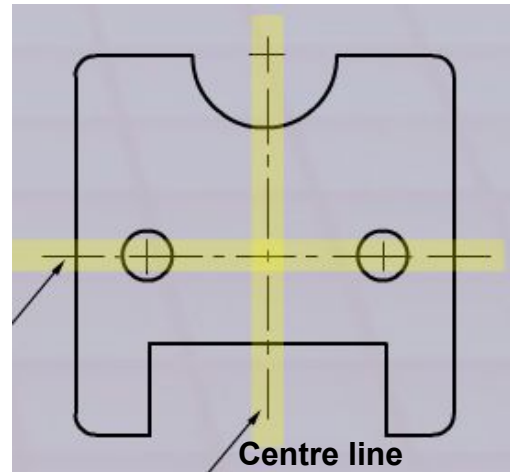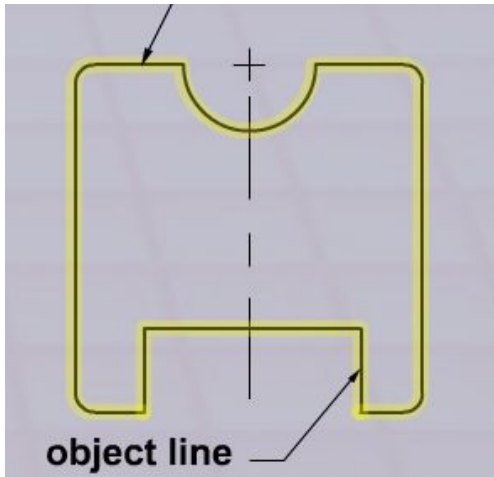
1. Visible lines are of same weight, 0.5mm thick, dark
2. Hidden lines are of same order as above
3. Centre lines are of same order as of 1
4. Section lines are light and evenly spaced
5. Construction lines should be thin lines

LINES IN USE

object line

Centre line

Centre marks

hidden line

hidden line

Phantom lines show alternative position.

Short break lines

Long break lines

LETTERING

- To indicate <u>sizes</u> and <u>other details</u> of an engineering component in the form of <u>notes</u> and <u>dimensions</u>
- For writing titles, subtitles, dimensions, on a drawing
- **Features: legibility, uniformity, and rapidity of execution**
- **Should be done freehand with speed**
- Should be produced with a single stroke of a pencil
- Lettering is in UPPERCASE unless specified
- Can be vertical or *slant,*
- Slant lettering is done at a slope of 75deg. with horizontal

<u>Size of letters:</u>
1.8 2.5 3.5 5   6   10 14 20

LETTERING STYLES
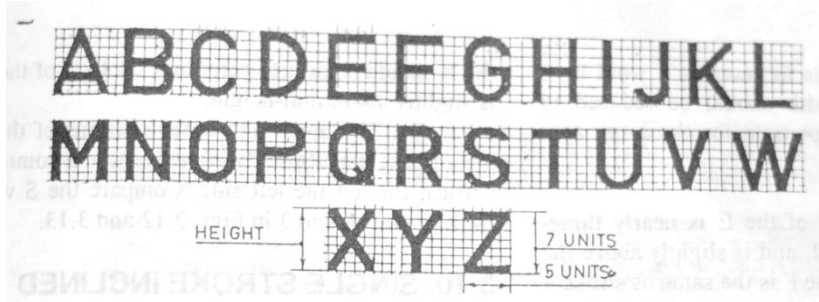
Single stroke, vertical, capital letters (7:5)
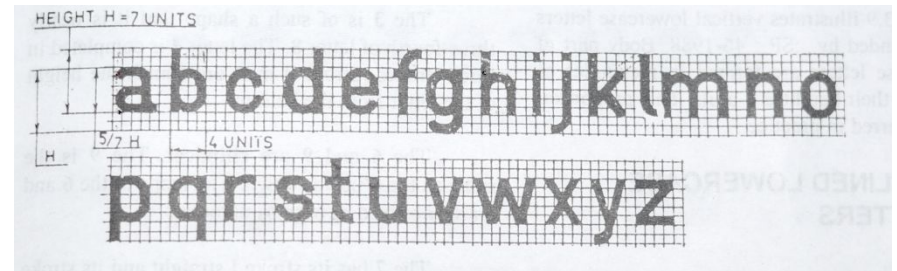
Single stroke, vertical, small case
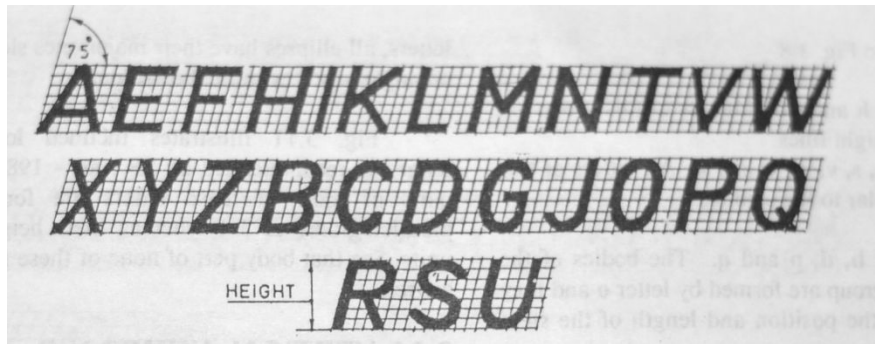
Single stroke, inclined, capital letters (7:5)

Single stroke, inclined, small case

8

TYPES OF LETTERING

- Type A
  - Vertical
  - Sloped, at 75 deg.
  - Capital height 'h' is divided into 14 parts

Characteristics	Ratio	Dimensions (mm)
Letter height of capitals	(14/14)h	14
Height of lower cases	(10/14)h	10
Spacing between characters	(2/14)h	2
Spacing between words	(6/14)h	6
Thickness of line	(1/14)h	1

TYPES OF LETTERING

- Type B
  - Vertical
  - Sloped at 75 deg. w.r.t the horizontal
  - Capital height 'h' is divided into 10 parts

Characteristics	Ratio	Dimensions (mm)
Letter height of capitals	(10/10)h	10
Height of lower cases	(7/10)h	7
Spacing between characters	(2/10)h	2
Spacing between words	(6/10)h	6
Thickness of line	(1/10)h	1

Exercise-1

- Write freehand single stroke <u>Vertical-Capital</u> and <u>Small letters</u> (From A-H) of type A of height 'h' 14mm.

- Write freehand single stroke <u>Inclined-Capital letters</u> (From A-H) of type A of height 'h' 14mm

- Write freehand single stroke Vertical-Numerals (From 0-9) of type B of height 'h' 10mm

- Write freehand single stroke Vertical-Capital and Small letters (From A-H) of type B of height 'h' 10mm

- Write the following in Inclined -Type B of 'h' 10mm:

"Engineering Drawing "

TYPE A LETTERING WIDTH

Width of various letter in Type A lettering		
Type of letter	Letter	Width
Capital or Upper case letters	I	1 unit
	J, L	5 units
	C, E , F	6 units
	A,Q,V,X,Y	8 units
	M	9 units
	W	12 units
	All other capital letters	7 units
Lower case letters	i	1 unit
	j, l, r	3 units
	f, t	4 units
	m	9 units
	w	10 units
	All other small letters	6 units
Numerals	1	4 units
	3, 5	5 units
	All other numerals	7 units

TYPE A LETTERING –UPPERCASE

- CAPITAL LETTERS of h=14mm
- Vertical, equally spaced, single stroke

h=14

10

Guidelines, should be faint, use 2H, 3H

Letters	Units
A,Q,V,X,Y	8 UNITS
B,D,G,H,K,N,O,P,R,S,T,U,Z	7 UNITS
C,E,F	6 UNITS
J,L	5 UNITS
M	9 UNITS
W	12 UNITS
I	1 UNIT
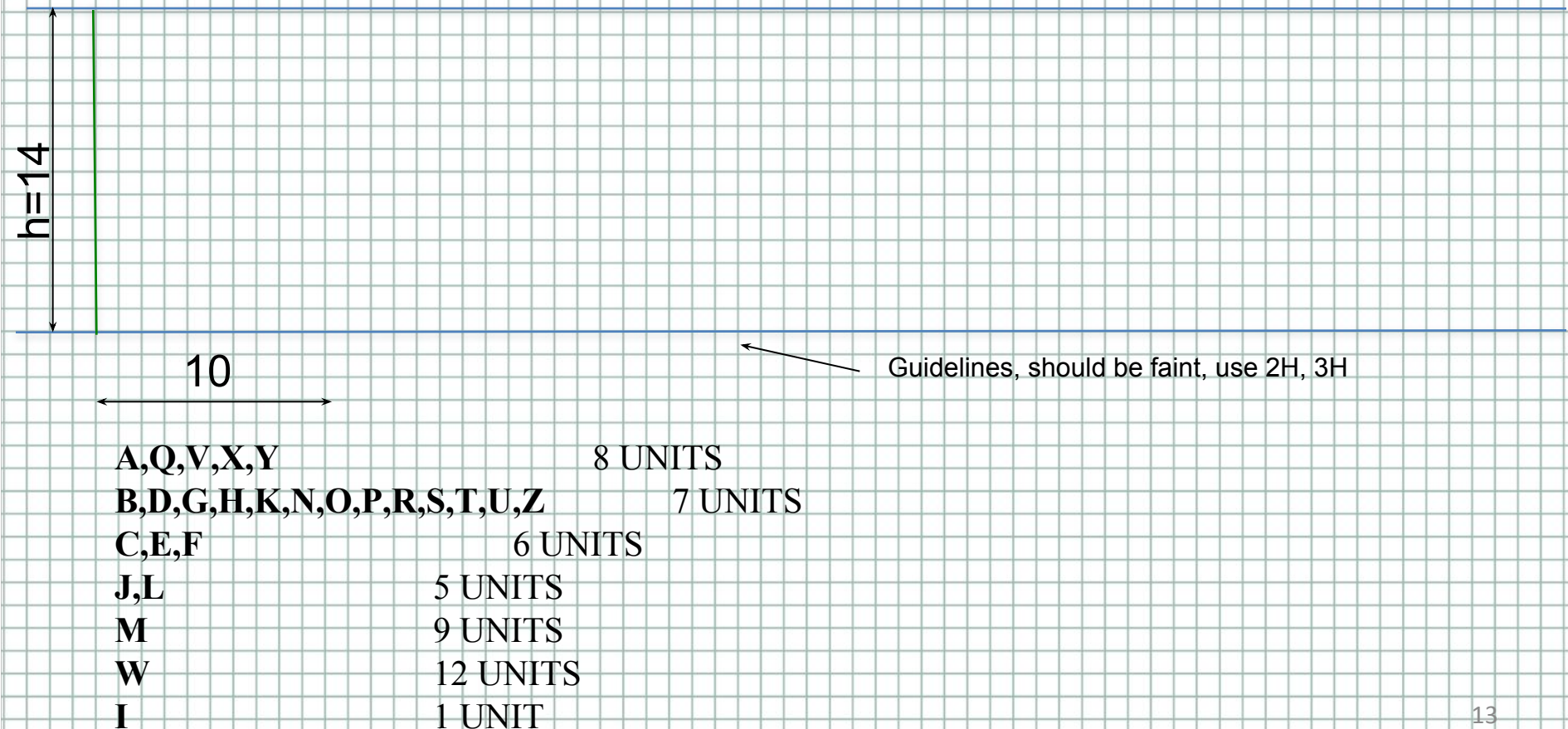
TYPE A LETTERING –LOWERCASE

- Small letters of height 'h'=14 mm

$\frac{5}{7}h$

ascender

4

h

10

4

descender
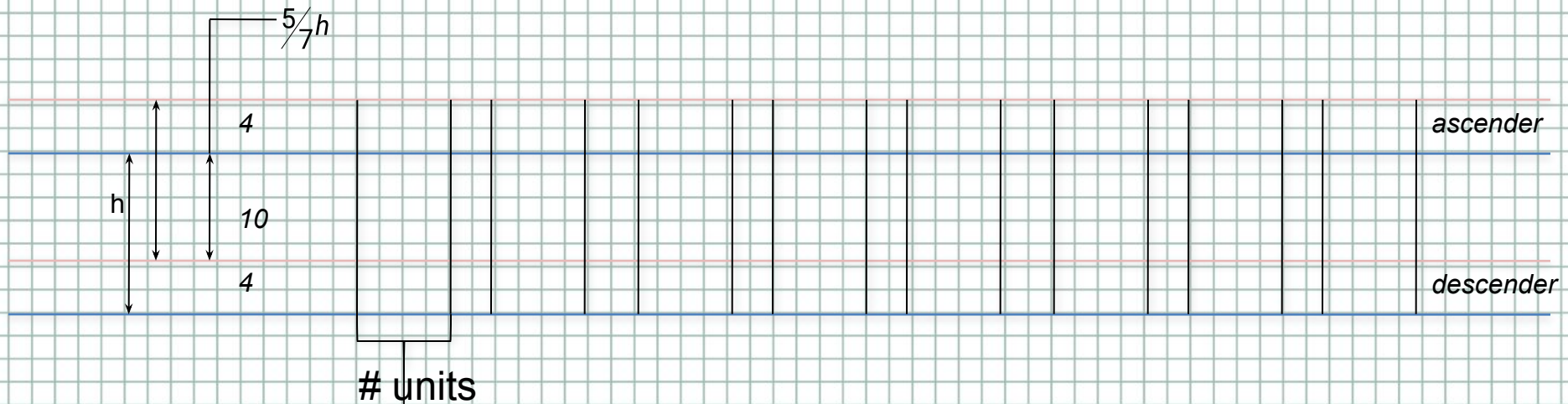
units

a,b,c,d,e,g,h,k,n,o,p,q,r,s,u,v,x,y,z	6 units
i	1 unit
j,l,r	3 units
f,t	4 units
m	9 units
w	10 units

TYPE B LETTERING –UPPERCASE

- Letter height, h=10mm

- Space between characters, 2mm

- Space between words, 4 mm

- Inclined, single stroke

B,D,G,H,K,N,O,P,R,S,T,U,Z 6 UNITS
J   4 UNITS
C,E,F,L   5 UNITS
A,M,Q,V,X,Y   7 UNITS
W   9 UNITS
I   1 UNIT

TYPE B LETTERING WIDTH

Width of various letter in Type B lettering		
Type of letter	Letter	Width
Capital or Upper case letters	I	1 unit
	J	4 units
	C, E , F, L	5 units
	A,M, Q,V,X,Y	7 units
	W	9 units
	All other capital letters	6 units
Lower case letters	i	1 unit
	l	2 units
	c,f, j, r, t	4 units
	All other small letters	5 units
Numerals	1	3 units
	4	6 units
	All other numerals	5 units

END OF LECTURE-I