

DEPARTMENT OF APPLIED SCIENCES
Assignment cum Tutorial Sheet (ATS) No. 1

COURSE: B.E.

BRANCH: CSE/ECE

YEAR & SEMESTER: 2016 BATCH/ 1st SEM

SUBJECT CODE & NAME: MEL4102 & ENGINEERING GRAPHICS

SUBJECT TEACHER: K Z Molla/ Amritpal Singh/ Amandeep Singh

TOPICS COVERED: **LETTERING AND DIMENSIONING**

SECTION –A

- Q-1 Long/break lines are shown by
- Q-2 What are the requirements of lettering?
- Q-3 Why is layout of sheet necessary?
- Q-4 What is the use of long chain thick line in engineering drawing?
- Q-5 What do you mean by single stroke letters?
- Q-6 Name different types of lines.
- Q-7 Two systems of placing dimensions on a drawing are and
- Q-8 What is the importance of dimensioning?
- Q-9 What is a leader line?
- Q-10 How the diameters and radii are designated?
- Q-11 What are general rules of dimensioning?

SECTION –B

- Q-1 Write the sentence 'A QUICK BROWN FOX JUMPS OVER THE LAZY DOG' in the size of 10 mm height.
- Q-2 Write the numerals 0 to 9 in 14 mm height.
- Q-3 Write the sentence 'POOR LETTERING MARS THE APPEARANCE OF PREPARED DRAWING ON THE SHEET' in 14 mm italic letters.

Q-4 Draw the SEVEN types of lines indicating its usage.

- ✓ The lines should be 100 mm long.
- ✓ The complete work should be enclosed in a rectangular block.

Q-5 Draw the following figure and show the aligned system and of dimensioning.

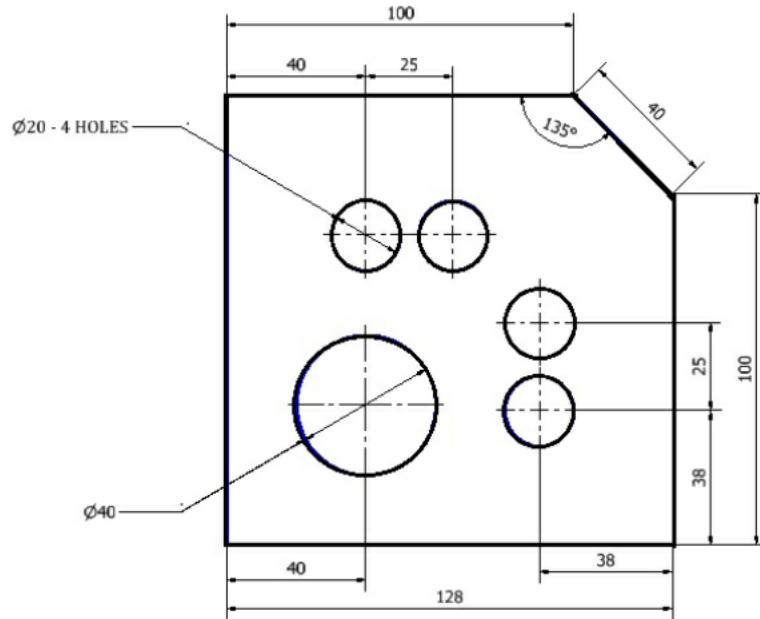


Fig.1

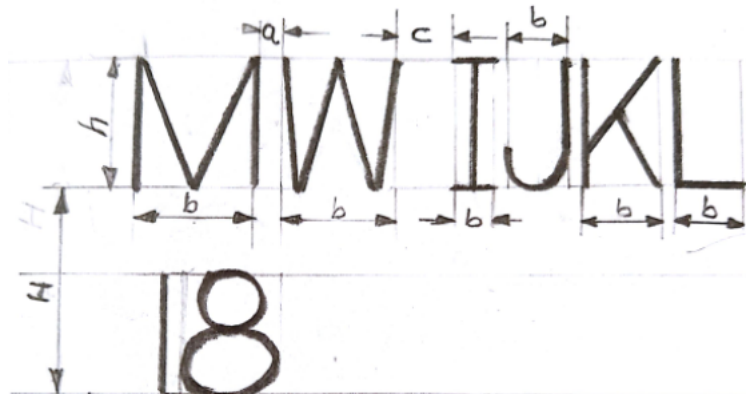


Fig.2 lettering dimensions

Height to width ratio = 7:5

For I, $h = b = 7:2$

For J and L, $h = b = 7:4$

Space between letter (a) = $(2/14) \times h$

Space between words (c) = $(6/14) \times h$

For M and W, $h = b = 7:6$

For I, Top and bottom line 2 mm

For 1, $h = b = 7:1$

Base line gap (H) = $(20/14) \times h$

DEPARTMENT OF APPLIED SCIENCES
Assignment cum Tutorial Sheet (ATS) No. 2

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TOPICS COVERED: **SCALES**

SECTION –A

- Q-1 The ratio of the length of the drawing of the object to the actual length of the object is called
- Q-2 When a drawing is made to the same size of the object, the name of the scale is
- Q-3 Drawings of buildings, maps are drawn using
- Q-4 What is the function of a scale?
- Q-5 What are the different types of scales?
- Q-6 What is the difference between plain scale and diagonal scale?
- Q-7 What is R.F?

Section-B

- Q-1 Construct a plain scale to show kilometers and hectometers when 6.25 cm^2 are equal to 1 km^2 and long enough to measure up to 6 kilometers. Mark the distance of 4.3Km on the scale.
- Q-2 The distance between two stations A and B is 144 kilometers and it is covered by a train in 4 hours. Draw a plain scale to measure the time up to a single minute. The RF of the scale is $1 / 240,000$. Calculate the distance covered by the train in 45 minutes and show minutes on the scale.
- Q-3 Construct a diagonal scale of R.F. = $1/40$ to read metres, decimetres and centimeters and long enough to read upto 5 metres. Show on this scale a distance of 2.46 metres.
- Q-4 The distance between two stations A and B is 100 kilometers and its equivalent distance on the railway map measure 2.5cm. What is the RF? Draw a diagonal scale showing single kilometers and indicate on the scale, the following distances:

- ✓ 578 kilometers
- ✓ 405 kilometers
- ✓ 333 kilometers

DEPARTMENT OF APPLIED SCIENCES
Assignment cum Tutorial Sheet (ATS) No. 3

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SUBJECT CODE & NAME: MEL4102 & ENGINEERING GRAPHICS

SUBJECT TEACHER: K Z Molla/ Amritpal Singh/ Amandeep Singh

TOPICS COVERED: **PROJECTION OF POINTS**

Section–A

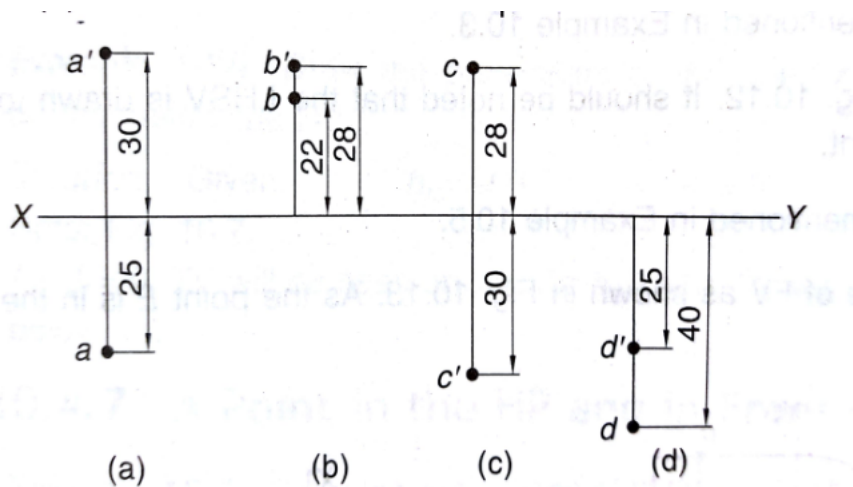
- Q-1 When a point is below the HP, its front view is xy line.
- Q-2 When a point lies on both HP and VP, its front view and top view xy line.
- Q-3 How the side view of a point is obtained from its front and top views?
- Q-4 When a point lies on the HP, its front view will be
- Q-5 The line joining the projections of a point intersects at an angle of to the xy line.
- Q-6 When a point lies on the VP, its top view will lie

Section-B

- Q-1 Draw the projections of the following points on the same ground line, keeping the projectors 20 mm apart
- a) 40 mm above the HP and 25 mm in front of VP.
 - b) 15 mm above the HP and 50 mm behind the VP
 - c) 25 mm below the HP and 25 mm behind the VP
 - d) On the HP and 25 mm behind VP
 - e) On both the HP and the VP
- Q-2 A point P is 50 mm away from both the reference planes. Draw its projections in all possible positions, keeping the distance between the projectors as 30 mm.
- Q-3 State the quadrants in which the following points are situated:
- a. A point 'P' whose top view is 40 mm above XY and the front view 20 mm below the top view.

- b. A point 'Q' whose projections coincide with each-other 40 mm below XY.

Q-4 Projections of various points are given in Fig below. State the position of each point with respect to the planes of projection. The distances are in mm.



- Q-5 A point A is 20 mm above HP and 30 mm in front of VP and point B is on the HP and 40 mm behind the VP. The distance between their projectors is 50 mm. Draw the projections of the points. Also draw straight lines joining their top and front views.
- Q-6 Two points A & B are on the HP. The point A is 30 mm in front of VP while B is behind VP. The distance between their projectors is 75 mm and the line joining their top views makes an angle of 45° with XY. Find the distance of the point B from the VP.
- Q-7 A point P is 20 mm below HP and lies in the third quadrant. Its shortest distance from XY is 40mm. Draw its projections.
- Q-8 A point A is situated in the first quadrant. Its shortest distance from the intersection point of HP and VP is 60 mm. This point lies on profile plane and equidistant from the principal planes. Draw the projections of the point and

determine its distance from the principal planes.

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Assignment cum Tutorial Sheet (ATS) No. 4

COURSE: B.E.

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SUBJECT CODE & NAME: MEL4102 & ENGINEERING GRAPHICS

SUBJECT TEACHER: K Z Molla/ Amritpal Singh/ Amandeep Singh

TOPICS COVERED: **PROJECTION OF LINES-1**

SECTION –A

- Q-1 A straight line is defined as the distance between two points of extremities.
- Q-2 When a line is perpendicular to one of the planes, it is to the other plane.
- Q-3 When a line is inclined to and parallel to, its top view represents the true length of the line.
- Q-4 When a line is inclined to HP and parallel to VP, the inclination of the front view with xy represents its
- Q-5 The trace of a line is a
- Q-6 A straight line will represent its true length in that plane to which it is
- Q-7 Define a straight line.

Section-B

- Q-1 Draw the projections of 40 mm long lines in following positions:
- (a) (i) Parallel to both HP and VP and 25 mm from each.
(ii) Parallel to and 30 mm above HP and in VP.
(iii) Parallel to and 40 mm in front of VP and on HP

- (b) (i) Perpendicular to HP, 20 mm in front of VP, one end 15 mm above HP
(ii) Perpendicular to VP, 25 mm above HP, and one end on VP
(iii) Perpendicular to HP, on VP, and one end on HP
- (c) (i) Inclined at 45° to VP, on HP and one end on VP
(ii) Inclined at 30° to HP, one end 20 mm above it and parallel to and 30 mm in front of VP
(iii) Inclined at 60° to VP and its one end 15 mm in front of it, parallel to and 25 mm above HP.
- Q-2 A 100 mm long line is parallel to and 40 mm above the HP. Its two ends are 25 and 50 mm in front of the VP respectively. Draw its projections and find the inclination of the line with VP.
- Q-3 A 90 mm long line is parallel to and 25 mm in front of the VP. Its one end is on HP, while the other is 50 mm above the HP. Draw its projections and find its inclination with HP. plot trace
- Q-4 The top view of a 75 mm long line measures 55 mm. The line is on VP. Its one end being 25 mm above the HP. Draw its projections and plot trace
- Q-5 The front view of a line, inclined at 30° to the VP is 65 mm long. Draw the projections and plot trace of the line when it is parallel to and 40 mm above the HP, its one end being 30 mm in front of the VP
- Q-6 Two pegs fixed on a wall are 4.5 meters apart. The distance between the pegs measured parallel to the floor is 3.6 meters. If one peg is 1.5 meters above the ground, find the height of the second peg and the inclination of the line joining the two pegs, with the floor.

DEPARTMENT OF APPLIED SCIENCES
Assignment cum Tutorial Sheet (ATS) No. 5

COURSE: B.TECH

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TOPICS COVERED: **PROJECTION OF LINES-II**

SECTION –A

- Q-1 What do you mean by the trace of a line?
Q-2 Draw the projections of two parallel lines.
Q-3 A line lies in a profile plane with equal elevation and plan length. Draw its projections and give the magnitude of angle ϕ and θ
Q-4 What is the true length of a line?

Section-B

One point location, true length and angles given. Draw projections and Traces

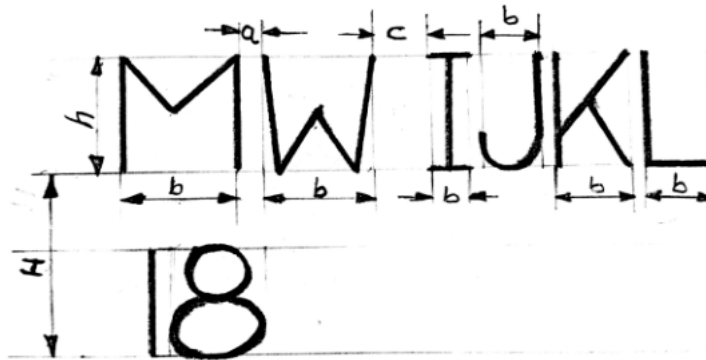
1. A straight line AB 60 mm long makes an angle of 45° to the HP and 30° to the VP. One end of the straight line AB lies in the HP and is 20 mm in front of VP. Draw the projections of the line AB.
2. A straight line AB is inclined at 30° and 60° to the VP and HP respectively. One end of the straight line is in the HP and 30 mm from the VP. The other end is in VP. Draw the projections of the straight line when it lies in the first quadrant. Also determine the length of the straight line and the end distance from HP.

Both points location and true length given. Draw projections, Traces and find inclinations.

3. The end point A of a straight line AB (50 mm long) is 12 mm away from HP and VP. The other point B is 30 mm away from HP and 40 mm from VP. Draw the

top and front views of the straight line AB and determine the true inclinations with HP (θ) & VP (ϕ).

4. A and B are two points in space. The point A lies in the VP and is 24 mm above the HP. Point B is in the HP and 36 mm from the VP. The point A is 54 mm away from B. Draw the top and front views of the straight line AB and also determine true inclinations (θ) and (ϕ) of the line with the HP and VP respectively.
5. The top view of a straight line AB 72 mm long, measures 60 mm while length of its front view is 50 mm. Its end A is in the VP and 12 mm above the HP. Draw the projections of the straight line and determine its inclinations with HP and VP.



Height to width ratio = 7:5

For I, h: b = 7:2

For J and L, h: b = 7:4

Space between letter (a) = $(2/14) \times h$

Space between words (c) = $(6/14) \times h$

For M and W, h: b = 7:6

For I, Top and bottom line 2 mm

For 1, h: b = 7:1

Base line gap (H) = $(20/14) \times h$