

ADDIS ABABA SCIENCE AND TECHNOLOGY UNIVERSITY

DEPARTMENT OF MECHANICAL ENGINEERING

MEng 1011 –ENGINEERING DRAWING

A/C Year 2018/2019

EXERCISE TWO

A. PROJECTION OF POINTS

1. Draw the projection of the following **points** using 1st angle projection
 - a) Point A, which is 60mm above HP, 55mm in front of VP and 30mm in front of left profile plane
 - b) Point B, which is 20mm above HP, 25mm in front of VP and 0mm in front of left profile plane
 - c) Point C, which is on the HP, 30mm in front of VP and 35mm in front of left profile plane
 - d) Point D, which is 20mm above HP, on the VP and 30mm in front of left profile plane
2. Draw the projection of the following **points** using 3rd angle projection
 - a) Point A is 40 mm behind VP, 60 mm below HP and 30 m behind the right profile plane.
 - b) Point B, which is 20mm below HP, 25mm behind of VP and 0mm behind the right profile plane.
 - c) Point C, which is on the HP, 30mm behind VP and 35mm behind the right profile plane.
 - d) Point D, which is 20mm below HP, on the VP and 30mm behind the right profile plane.
3. Show the space representation of questions 1a, and 2a

B. PROJECTION OF LINES

4. Draw the projection of the following **lines** (unit in **cm**) using 1st angle projection
 - a) Line EF where E= (4,0,4) and F= (4,4,4)
 - b) Line AB where A= (4,3,4) and B= (6,4,6)
 - c) Line CD where C= (4,0,4) and D= (4,5,4)
5. Draw the projection of the following **lines** using either first angle or third angle projection system
 - a) A line CD 30 mm long is Perpendicular to HP and parallel to VP. The line is 40 mm below HP and 20 mm behind of VP. Draw its projection.
 - b) Draw the projections of straight line AB 60 mm long parallel to HP and inclined at an angle of 40° to VP. The end A is 30 mm above HP and 20 mm in front of VP.
 - c) The top view of a 75mm long line AB measures 65mm, while its front view measures 50mm. It's one end A is in HP and 12mm in front of VP. Draw the projections of AB and determine its inclination with HP and VP

- d) Line of 80 mm length is placed parallel to both HP and VP. The line is 70 mm above HP, 60 mm in front of VP. end B is 30 mm in front of right PP.

C. PROJECTION OF PLANES

6. Draw the projections of the following plane (use either 1st or 3rd angle projection system)
 - a) A 60°-30° set-square of 125 mm longest side is so kept that the longest side is in HP, making an angle of 30° with the VP & the set-square itself inclined at 45° to the HP.
 - b) A plate having the shape of an isosceles triangle has base of 50 mm long and altitude 70 mm. It is so placed that in the front view, it is seen as an equilateral triangle of 50 mm sides and one side is inclined at 45° to x-y.
 - c) Rectangle 30mm and 50mm sides is resting on HP on one small side which is 30° inclined to VP, while the surface of the plane makes 45° inclinations with HP. Draw its projections.
 - d) A 30° – 60° set square of longest side 100 mm long, is in VP and 30° inclined to HP while it's surface is 45° inclined to VP.

D. ASSIGNMENT TWO

1. Draw the projection of the following points
 - a) Point A, which is 50mm above horizontal plane (HP), 65mm in front of vertical plane (VP) and 45mm in front left profile plane (PP). (Use first angle projection system)
 - b) Point B, which is 60mm below horizontal plane (HP), 65mm in behind of vertical plane (VP) and 45mm behind right profile plane (PP). (Use third angle projection system)
2. Draw the projection of the following lines
 - a) Line AB 75 mm long inclined at an angle of 30° to HP, parallel to VP and inclined at an angle of 60° to PP. The end A is 15mm below HP and 25 mm behind of VP and 45mm behind PP. (Use third angle projection system)
 - b) Line CD where C= (2,1,2) and D= (7,5,6). (Using first angle projection system)
3. A 30° – 60° set square of longest side 100 mm long is in VP and its surface 45° inclined to VP. One end of longest side is 10 mm and other end is 35 mm above HP. Draw its projections. (Using first angle projection system)