

# BITS, Pilani – Dubai Campus

Knowledge Village, Dubai

I Year – I Semester 2004 – 2005

## COMPREHENSIVE EXAMINATION

Course No. : TA UC111.  
Course Title : Engineering Graphics.  
Nature of Exam : Closed Book.  
Weightage : 40 %  
Duration : 90 minutes.  
Date : 26.12.2004.

No. of Pages	= 1
No. of Questions	= 4

**NOTE:** Save the drawing files in your ID No. followed by COMP.

1. One end of a line CD is 10 mm below H.P. and 40 mm behind V.P. The other end of the line is 40 mm below H.P. and 10 mm behind V.P. The distance between the end projectors is 40 mm. Draw the projections of the line and show the true length and true inclinations with H.P. and V.P. (10 marks)
- (OR)
2. A cube of base side 40 mm rests on one of its corners of the base such that the base makes an angle of  $45^\circ$  to the H.P. and the vertical face containing the corner is revolved through an angle of  $30^\circ$  with reference to the V.P. while keeping the vertical edges of the solid parallel to V.P. Draw the projections of the cube. Name all the points and show the dimensions. Use third angle projection. (10 marks)
  3. A pentagonal pyramid of base side 40 mm and axis 80 mm is lying on the ground on its base with one of its base edges parallel to the H.P. and V.P. The pyramid is cut by a plane perpendicular to the V.P. and inclined at  $40^\circ$  to the H.P. The cutting plane bisects the axis of the pyramid. Using first angle projection:
    - Draw the projections of the solid.
    - Locate the cutting plane.
    - Show the sectional view.
    - Draw the development of the lateral surfaces of the truncated solid.
    - Name all the points in the section and the development.
    - Show the dimensions.(15 marks)
  4. A cone of base diameter 60 mm and altitude 120 mm penetrates into a vertical cylinder of diameter 70 mm. Their axes intersect at right angles. The axis of the cone is parallel to both H.P. and V.P. Using first angle projection:
    - Draw the projections of the solids
    - Locate the points of intersection
    - Name all the points
    - Show the curves of intersection
    - Show the dimensions
    - Retain all the projectors(15 marks)

**All the BEST**

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1. A line PQ 70 mm long has its end P on the H.P. and 30 mm behind V.P. The line is inclined at  $55^\circ$  to the H.P. and  $35^\circ$  to the V.P. Draw the projections of the line and find the apparent inclinations with H.P. and V.P. (10 marks)
2. (OR)  
Draw the projections of a square pyramid of base side 40 mm and axis 60 mm when resting on the H.P. on one of its base corners with a base side containing the corner making  $30^\circ$  with the H.P. The axis is inclined at  $45^\circ$  to the V.P. and is parallel to the H.P. and the vertex is away from the V.P. Name all the points and show the dimensions. Use third angle projection. (10 marks)
3. A hexagonal prism of base side 35 mm and axis length 70 mm rests on its base on the H.P. with two of its base edges perpendicular to XY. It is cut by a plane inclined at  $40^\circ$  to the H.P. and perpendicular to the V.P. The cutting plane meets the axis 30 mm above the base. Using first angle projection:  
Draw the projections of the solid.  
Locate the cutting plane.  
Show the sectional view.  
Draw the development of the lateral surfaces of the truncated solid.  
Name all the points in the section and the development.  
Show the dimensions. (15 marks)
4. A cylinder of 90 mm diameter is resting on its base on the ground. It is penetrated by another cylinder of 60 mm diameter. The axis of the penetrating cylinder is parallel to the V.P. and inclined at  $30^\circ$  to that of the vertical cylinder, while bisecting it. Using first angle projection:  
Draw the projections of the solids  
Locate the points of intersection  
Name all the points  
Show the curves of intersection  
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1. A line MN 80 mm long has its end M 10 mm below H.P. and 20 mm behind V.P. The line is inclined at  $30^\circ$  to the H.P. and  $40^\circ$  to the V.P. Draw the projections of the line and find the apparent inclinations with H.P. and V.P. (10 marks)
- (OR)
2. Draw the projections of a square pyramid of base side 30 mm and axis 50 mm when resting on the H.P. on one of its base corners with a base side containing the corner making  $35^\circ$  with the H.P. The axis is inclined at  $30^\circ$  to the V.P. and is parallel to the H.P. and the vertex is away from the V.P. Name all the points and show the dimensions. Use third angle projection. (10 marks)
3. A hexagonal prism of base side 30 mm and axis length 60 mm rests on its base on the H.P. with two of its base edges parallel to XY. It is cut by a plane inclined at  $30^\circ$  to the H.P. and perpendicular to the V.P. The cutting plane meets the axis 20 mm above the base. Using first angle projection:  
Draw the projections of the solid.  
Locate the cutting plane.  
Show the sectional view.  
Draw the development of the lateral surfaces of the truncated solid.  
Name all the points in the section and the development.  
Show the dimensions. (15 marks)
4. A cylinder of 60 mm diameter is resting on its base on the ground. It is penetrated by another cylinder of 30 mm diameter. The axis of the penetrating cylinder is parallel to the V.P. and inclined at  $45^\circ$  to that of the vertical cylinder, while bisecting it. Using first angle projection:  
Draw the projections of the solids  
Locate the points of intersection  
Name all the points  
Show the curves of intersection  
Show the dimensions  
Retain all the projectors (15 marks)

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1. A line GH 85 mm long has its end G on the H.P. and 10 mm behind V.P. The front view measures 65 mm and makes an angle of  $50^\circ$  with the H.P. Draw the projections of the line and find the true inclinations with H.P. and V.P. (10 marks)
- (OR)
2. A square pyramid of base side 50 mm and axis 90 mm has one of its triangular faces on the V.P. and the axis parallel to the H.P. Draw its projections. Name all the points and show the dimensions. Use third angle projection. (10 marks)
3. A cylinder of base diameter 50 mm and axis length 80 mm rests on its base on the H.P. It is cut by a plane inclined at  $30^\circ$  to the H.P. and perpendicular to the V.P. The cutting plane meets the axis 35 mm from the top. Using first angle projection:  
Draw the projections of the solid.  
Locate the cutting plane.  
Show the sectional view.  
Draw the development of the lateral surfaces of the truncated solid.  
Name all the points in the section and the development.  
Show the dimensions. (15 marks)
4. A vertical cylinder of 60 mm diameter and axis length 130 mm is completely penetrated by another cylinder of 40 mm diameter, their axes intersecting each other. The axis of the penetrating cylinder meets the axis of the vertical cylinder 70 mm from the base. Assume the axis of the penetrating cylinder to be parallel to both H.P. and V.P. Using first angle projection:  
Draw the projections of the solids  
Locate the points of intersection  
Name all the points  
Show the curves of intersection  
Show the dimensions  
Retain all the projectors (15 marks)

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1. A line EF 65 mm long has its end E 20 mm below H.P. and 10 mm behind V.P. The top view measures 50 mm and makes an angle of  $37^\circ$  with the V.P. Draw the projections of the line and find the true inclinations with H.P. and V.P. (10 marks)
- (OR)
2. A square pyramid of base side 60 mm and axis 100 mm lies on the H.P. on one of its triangular faces with its axis parallel to the V.P. Draw its projections. Name all the points and show the dimensions. Use third angle projection. (10 marks)
3. A cylinder of base diameter 40 mm and axis length 70 mm rests on its base on the H.P. It is cut by a plane inclined at  $40^\circ$  to the H.P. and perpendicular to the V.P. The cutting plane meets the axis 25 mm from the top. Using first angle projection:  
Draw the projections of the solid.  
Locate the cutting plane.  
Show the sectional view.  
Draw the development of the lateral surfaces of the truncated solid.  
Name all the points in the section and the development.  
Show the dimensions. (15 marks)
4. A vertical cylinder of 50 mm diameter and axis length 120 mm is completely penetrated by another cylinder of 30 mm diameter, their axes intersecting each other. The axis of the penetrating cylinder meets the axis of the vertical cylinder 50 mm from the base. Assume the axis of the penetrating cylinder to be parallel to both H.P. and V.P. Using first angle projection:  
Draw the projections of the solids  
Locate the points of intersection  
Name all the points  
Show the curves of intersection  
Show the dimensions  
Retain all the projectors (15 marks)

**All the BEST**