

Birla Institute of Technology and Science Pilani-K. K. Birla Goa Campus
Second Semester 2022-2023

No. of Questions:4

BITS F110 Engineering Graphics
Comprehensive Examination (Closed Book)

DATE: 15/07/2023

Time: 90 Min

Maximum Marks: 80

Instructions:

- Save the file and rename with your 12 digit Student ID number.
- All the drawings should be made in the given single file alone, within the space provided for each question. Sufficient space is provided to draw the views.
- Save your drawing after every 5 minutes. Loss of data will not be compensated
- Construction lines should be trimmed neatly for the entire drawings or converted to 'color 251'.
- **Colour code other than use of 'Black' for final drawings:**
 - 'Red' for hidden lines
 - 'Green' for true length for lines problem and section plane for section of solid problem
 - 'color 251' for construction lines
- Do not show dimensions in the drawings
- **Correct labeling is must wherever applicable**
- If required change snap to 0.125. **Do not change the grid spacing**
- Use zoom, when necessary.

Q. 1 Line AB is parallel to the PP with an endpoint A 25 mm above the HP and 100 mm in front of the VP. Endpoint B is 137.5 mm above the HP and 25 mm in front of the VP. Locate HT and VT of the line. Also find the true length and true inclinations. Consider one grid spacing = 25 mm. [20]

Q. 2 A hexagonal lamina of sides 100 mm with a rectangular hole of edge lengths of 100 mm and 50 mm centrally located, rests on one of its corners on HP. The corner opposite to the corner on which it rests is 75 mm above HP. The TV of the diagonal passing through the corner on which it rests is inclined at 50° to XY and the longer side of the rectangular hole is parallel to it. Draw the projections of the lamina. Find the inclination of the surface with HP (Use 1st angle method of projection). [20]

Q3 A hexagonal prism of base side 60 mm and axis length 150 mm is resting on a rectangular face on the ground with axis parallel to the HP and VP. It is cut by an AIP inclined at 30° and passing through a point on the axis 25 mm from right side end face. Note that AIP does not cross through the face on which it is resting on the ground. Draw its FV, sectional top view and obtain true shape of the section (Use 3rd angle method of projection). [20]

Q4 A square pyramid is resting on its base on ground with base edge 125 mm and height 175 mm. The base edge is at an angle of 15 degree to VP. The solid in the final position is pierced by a rhombus shaped hole of diagonals 50 mm and 75 mm. The longer diagonal of the hole is parallel to the base and is at a height of 75 mm from the ground and the hole just touches the right most slant edge of the solid. Draw the development of the surface of the pierced solid starting with the rightmost slant edge in the counter clockwise direction. Also show the profile of the hole in the TV. Find the length of periphery of each hole pierced on development (Use 3rd angle method of projection). [20]