

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI, PILANI CAMPUS

FIRST SEMESTER 2022– 2023

BITS F110 (ENGINEERING GRAPHICS)
MID-SEMESTER EXAM (OFFLINE and CLOSED BOOK)

Set: B2

Duration: 75 Minutes for Solving + 10 minutes for Uploading

Max Marks: 70

NOTE:

- Save your work frequently and follow the note given for every question and draw accordingly.
- COLOR CODE: Visible lines → White/black Continuous 0.3; Hidden lines → Red Hidden2 0.3; Center lines → Blue Center 0.0; Construction lines → Cyan Continuous 0.0; Locus lines → yellow continuous 0.0 m, Dimension lines → Magenta continuous 0.0. **Submit both '.dwg' file and individual screenshot files of all solutions. Folder on Desktop with BITS_ID_First name.**
- CCW → Counterclockwise; CW → Clockwise
- Label all the views properly (i.e., FV, TV and SV)
- It is mandatory to submit '.dwg' file' along with screenshot(s) of your solutions
- Please upload both '.dwg' file(s) and screenshot file of all solutions on **Nalanda**. Please make sure that all your solutions are clearly visible in the screenshot. If and only if all solutions are not clearly visible in a single screenshot, you may submit separate screenshots of solutions for the different questions.
- It is your responsibility to properly upload and turn in your '.dwg' and screenshot files.
- You will be allowed to permanently leave the examination room only after the end of submission time. Please ensure you click the **submit** button for final submission. Any submissions beyond the deadline will be given negative marks.
- Providing Labels and Dimension Lines are compulsory.

NAME:

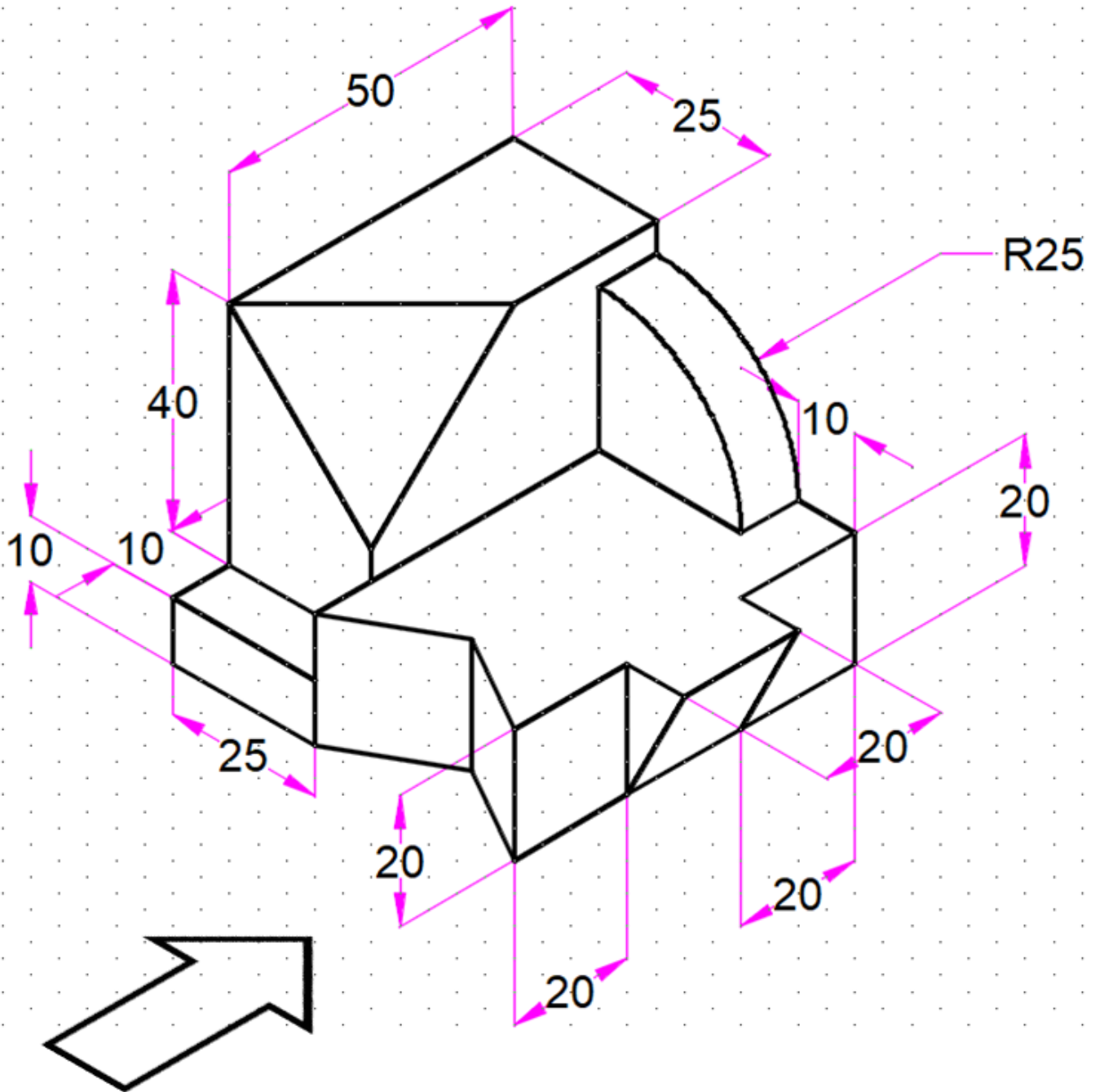
BITS ID:

YOUR SIGNATURE:

Q1. A line AB has its end A 30 mm behind VP and 75 mm below HP. Other end B is 65 mm behind VP. The front view of the line is 40 mm long and makes an angle of 40 deg CCW with HP. The end A is to the left of end B and both ends are in the third quadrant. Draw the projections of the line. Find the true length, apparent length and apparent inclination of line in top view, true inclination of line with HP (CW/CCW), and true inclination with VP (CW/CCW), end projector distance, and distance of point B from HP. Provide all necessary dimensions and report the results in a separate text box up to two decimal points. **[20]**

Q2. A regular pentagonal plate of 60 mm side has a centrally punched hole of 54 mm diameter. The plate is held on one of its edges in the HP, and the rest of the plate is completely below the HP with a CCW inclination with HP. The centre of the plate is 70 mm behind the VP. In the top view, the circular hole looks like an ellipse with 35 mm minor axis. The edge adjacent to the resting edge as well as nearest to VP seems parallel to the VP in the top view. Draw the projections of the plate. Find the inclination of the plate surface with the HP and the true inclination of the resting edge with the VP. **[20]**

Q3. Draw the orthographic projections of front view, top view and side view of the given isometric drawing in third angle projection.



[20]

Q4a. Draw Projection of a point 40 mm in front of VP and 30 mm below HP.

[3]

Q4b. Draw projection of a regular pentagon of side 40 mm with its plane perpendicular to both HP and VP and one of its sides resting on HP.

[7]

Duration: 75 Minutes for Solving + 10 minutes for Uploading

Max Marks: 70

NOTE:

- Save your work frequently and follow the note given for every question and draw accordingly.
- COLOR CODE: Visible lines → White/black Continuous 0.3; Hidden lines → Red Hidden2 0.3; Center lines → Blue Center 0.0; Construction lines → Cyan Continuous 0.0; Locus lines → yellow continuous 0.0, Dimension lines → Magenta continuous 0.0. **Submit both ‘.dwg’ file and individual screenshot files of all solutions. Folder on Desktop with BITS_ID_First name.**
- CCW → Counterclockwise; CW → Clockwise
- Label all the views properly (i.e., FV, TV and SV)
- It is mandatory to submit ‘.dwg’ file’ along with screenshot(s) of your solutions
- Please upload both ‘.dwg’ file(s) and screenshot file of all solutions on **Nalanda**. Please make sure that all your solutions are clearly visible in the screenshot. If and only if all solutions are not clearly visible in a single screenshot, you may submit separate screenshots of solutions for the different questions.
- It is your responsibility to properly upload and turn in your ‘.dwg’ and screenshot files.
- You will be allowed to permanently leave the examination room only after the end of submission time. Please ensure you click the **submit** button for final submission. Any submissions beyond the deadline will be given negative marks.
- Providing Labels and Dimension Lines are compulsory.

NAME:

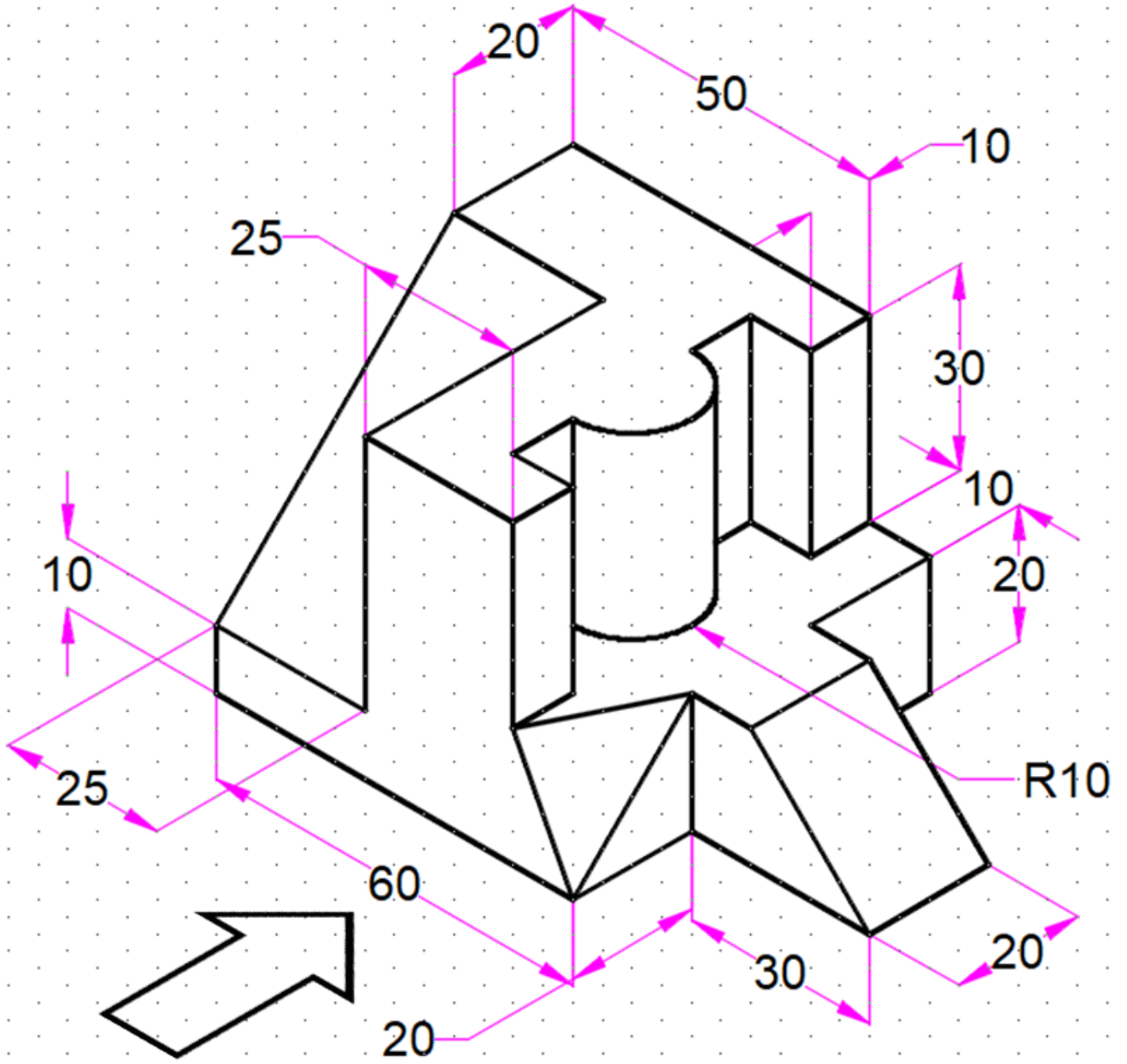
BITS ID:

YOUR SIGNATURE:

Q1. The end A of a line AB is 15 mm in front of VP and 25 mm above HP. The line is inclined at 30 deg CCW to HP and apparent front view inclination is 45 deg CCW to HP. Top view of the line is 60 mm long. The end A is to the left of B and both points are in the first quadrant. Draw the projections of the line. Find the true length, distance of point B from horizontal plane and vertical plane, front view length, end projector distance, and true and apparent inclination with VP (CW/CCW). Provide all necessary dimensions and report the results in a separate text box up to two decimal points. [20]

Q2. A regular hexagonal plate of negligible thickness and 25 mm side has a central circular hole of 20 mm diameter. The plate rests on one of its corners in the HP and makes a certain CCW angle with the HP such that the largest diagonal passing through the resting corner appears to be 40 mm long in the top view. The top view of this diagonal makes 45 deg CW angle with the VP. The entire plate is placed in the first quadrant. Draw the projections of the plate held in this position if the resting corner is 35 mm in front of the VP. Find the apparent length of the sides parallel to the diagonal in FV and the true inclination of the plate surface with the HP. [20]

Q3. Draw the orthographic projections of front view, top view and side view of the given isometric drawing in third angle projection.



[20]

Q4a. Draw Projection of a point 20 mm above HP and 30 mm behind VP.

[3]

Q4b. Draw front view, top view, side view of a sphere of diameter 40 mm resting on the ground. It has a spherical hole of diameter 20 mm at its center.

[7]

Duration: 75 Minutes for Solving + 10 minutes for Uploading

Max Marks: 70

NOTE:

- Save your work frequently and follow the note given for every question and draw accordingly.
- COLOR CODE: Visible lines → White/black Continuous 0.3; Hidden lines → Red Hidden2 0.3; Center lines → Blue Center 0.0; Construction lines → Cyan Continuous 0.0; Locus lines → yellow continuous 0.0, Dimension lines → Magenta continuous 0.0. **Submit both ‘.dwg’ file and individual screenshot files of all solutions. Folder on Desktop with BITS_ID_First name.**
- CCW → Counterclockwise; CW → Clockwise
- Label all the views properly (i.e., FV, TV and SV)
- It is mandatory to submit ‘.dwg’ file’ along with screenshot(s) of your solutions
- Please upload both ‘.dwg’ file(s) and screenshot file of all solutions on **Nalanda**. Please make sure that all your solutions are clearly visible in the screenshot. If and only if all solutions are not clearly visible in a single screenshot, you may submit separate screenshots of solutions for the different questions.
- It is your responsibility to properly upload and turn in your ‘.dwg’ and screenshot files.
- You will be allowed to permanently leave the examination room only after the end of submission time. Please ensure you click the **submit** button for final submission. Any submissions beyond the deadline will be given negative marks.
- Providing Labels and Dimension Lines are compulsory.

NAME:

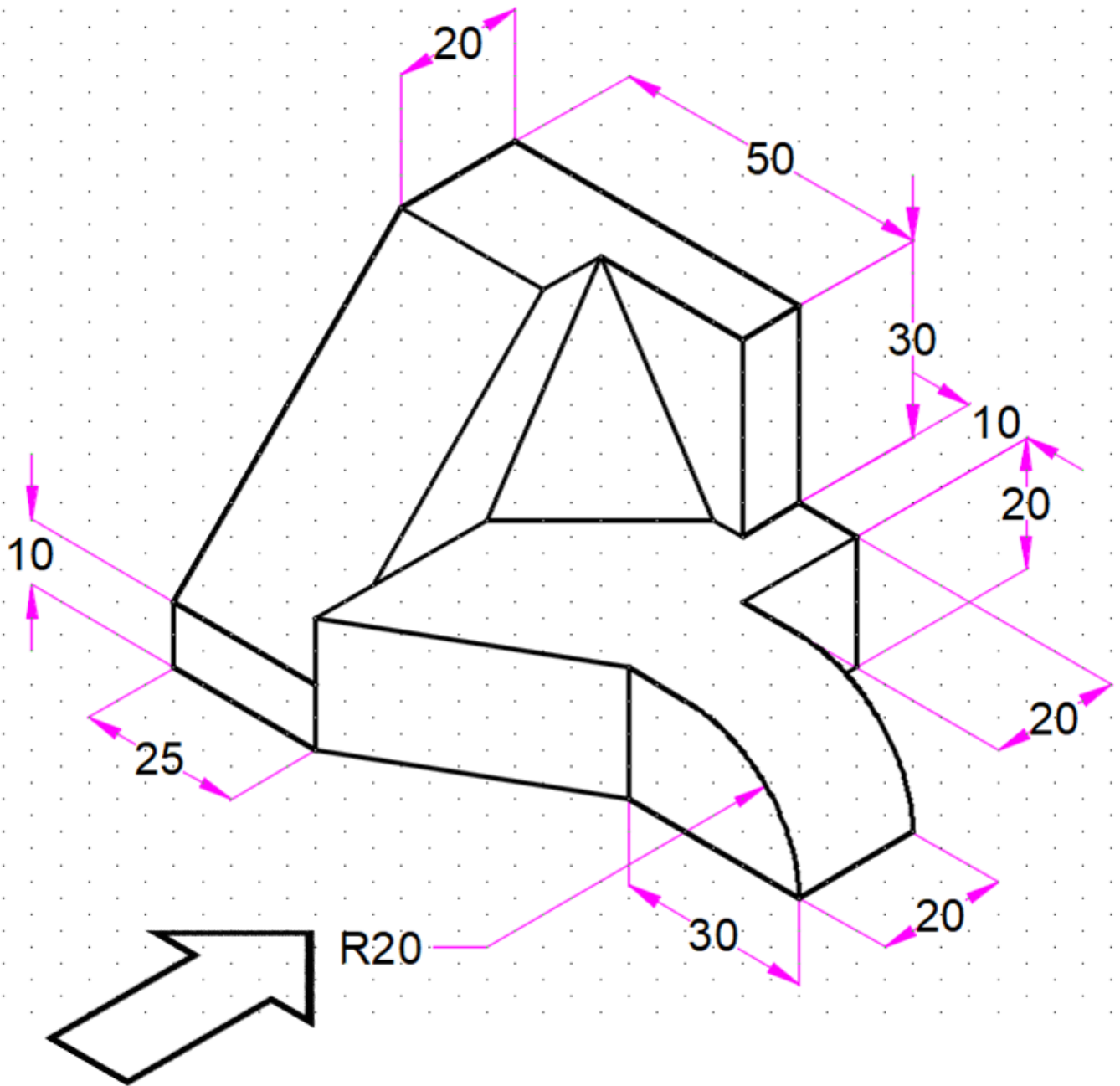
BITS ID:

YOUR SIGNATURE:

Q1. The end A of a line AB is 20 mm behind VP and 30 mm below HP. The line is inclined at 20 deg CW to HP and apparent front view inclination is 35 deg CW. Top view of the line is 50 mm long. The end A is to the left of B and both points are in the third quadrant. Draw the projections of the line. Find the true length, distance of point B from horizontal plane and vertical plane, front view length, end projector distance, and true and apparent inclination with VP (CW/CCW). Provide all necessary dimensions and report the results in a separate text box up to two decimal points. **[20]**

Q2. A regular hexagonal plate of negligible thickness and 30 mm side has a central circular hole of 25 mm diameter. The plate rests on one of its corners in the HP with its plane making a certain CW angle such that the largest diagonal passing through the resting corner appears to be 45 mm long in TV. The top view of this diagonal makes 60 deg CCW angle with the VP. The entire plate is placed in the first quadrant. Draw the projections of the plate held in this position if the resting corner is 45 mm in front of the VP. Find the apparent length of the sides parallel to the diagonal in FV and the true inclination of the plate surface with the HP. **[20]**

Q3. Draw the orthographic projections of front view, top view and side view of the given isometric drawing in third angle projection.



[20]

Q4a. Draw Projection of a point 20 mm above HP and 30 mm behind VP.

[3]

Q4b. Draw front view, top view, side view of a sphere of diameter 40 mm resting on the ground. It has a spherical hole of diameter 20 mm at its center.

[7]

BIRLA INSTITUTE OF TECHNOLOGY AND SCIENCE, PILANI, PILANI CAMPUS

FIRST SEMESTER 2022– 2023

BITS F110 (ENGINEERING GRAPHICS)
MID-SEMESTER EXAM (OFFLINE and CLOSED BOOK)

Set: B1

Duration: 75 Minutes for Solving + 10 minutes for Uploading

Max Marks: 70

NOTE:

- Save your work frequently and follow the note given for every question and draw accordingly.
- COLOR CODE: Visible lines → White/black Continuous 0.3; Hidden lines → Red Hidden2 0.3; Center lines → Blue Center 0.0; Construction lines → Cyan Continuous 0.0; Locus lines → yellow continuous 0.0 m, Dimension lines → Magenta continuous 0.0. **Submit both '.dwg' file and individual screenshot files of all solutions. Folder on Desktop with BITS_ID_First name.**
- CCW → Counterclockwise; CW → Clockwise
- Label all the views properly (i.e., FV, TV and SV)
- It is mandatory to submit '.dwg' file' along with screenshot(s) of your solutions
- Please upload both '.dwg' file(s) and screenshot file of all solutions on **Nalanda**. Please make sure that all your solutions are clearly visible in the screenshot. If and only if all solutions are not clearly visible in a single screenshot, you may submit separate screenshots of solutions for the different questions.
- It is your responsibility to properly upload and turn in your '.dwg' and screenshot files.
- You will be allowed to permanently leave the examination room only after the end of submission time. Please ensure you click the **submit** button for final submission. Any submissions beyond the deadline will be given negative marks.
- Providing Labels and Dimension Lines are compulsory.

NAME:

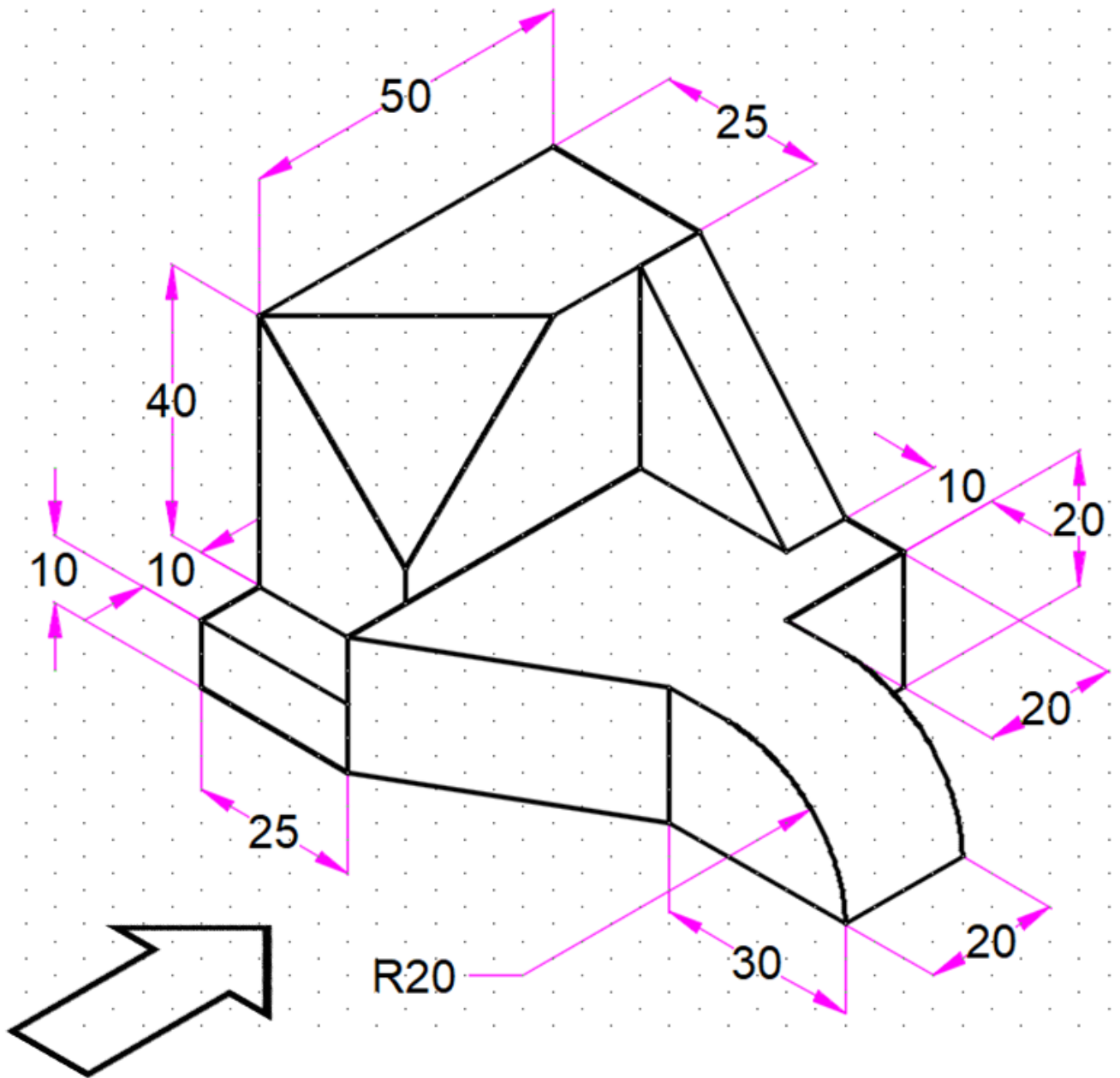
BITS ID:

YOUR SIGNATURE:

Q1. A line AB has its end A 60 mm in front of VP and 25 mm above HP. Other end B is 55 mm above HP. The top view of the line is 50 mm long and makes an angle of 58 deg CCW inclination with VP. The end A is to the left of end B and both ends are in the first quadrant. Draw the projections of the line. Find the true length, apparent length in FV, true and apparent inclination of line with HP (CW/CCW), end projector distance, and true inclination with VP (CW/CCW), and distance of point B from VP. Provide all necessary dimensions and report the results in a separate text box up to two decimal points. **[20]**

Q2. A regular pentagonal plate of 50 mm side has a centrally punched hole of 44 mm diameter. The plate is held on one of its edges in the HP, and the rest of the plate is completely below the HP with a CW inclination with HP. The centre of the plate is 60 mm behind the VP. In the top view, the circular hole looks like an ellipse with a 28 mm minor axis. The edge adjacent to the resting edge, which is also nearest to VP, seems parallel to the VP in the top view. The entire plate is in the third quadrant. Draw the projections of the plate. Find the inclination of the plate surface with the HP and the inclination of the resting edge with the VP. **[20]**

Q3. Draw the orthographic projections of front view, top view and side view of the given isometric drawing in third angle projection.



[20]

Q4a. Draw Projection of a point 40 mm in front of VP and 30 mm below HP.

[3]

Q4b. Draw projection of a regular pentagon of side 40 mm with its plane perpendicular to both HP and VP and one of its sides resting on HP.

[7]