

# University School of **Automation And Robotics**



**End Semester Practical File**

**Engineering Graphics**

**Semester – 1**

**Submitted to**

**APPURVA JAIN**

**Submitted by**

**Animesh Dutta**

**(04019011721)**

**IIOT B1**

# CERTIFICATE

It is certified that the work contained in the report title"..  
Engineering Graphics file...", by Animesh Dutta..... has been  
carried out under my supervision and this work has not been  
submitted elsewhere.

-  
APPURVA JAIN  
**Supervisor**

## **DEDICATED TO**

To my Supervisor APPURVA JAIN . for sharing his valuable knowledge, encouragement & showing confidence on me all the time. Each of the faculties of the department to contribute in my development as a professional and help me to achieve goal. To all those people who have somehow contributed to the creation of this report and presentation and who have supported me. Also, to our Loving Family for their kind love and support.

## **DECLARATION**

I declare that the work presented in this report proposal titled ".ENGINEERING GRAPHICS FILE.....", submitted to the ..Animesh Dutta for internal assessment in Graphics represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in our submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

March, 2022

Delhi

## ACKNOWLEDGEMENT

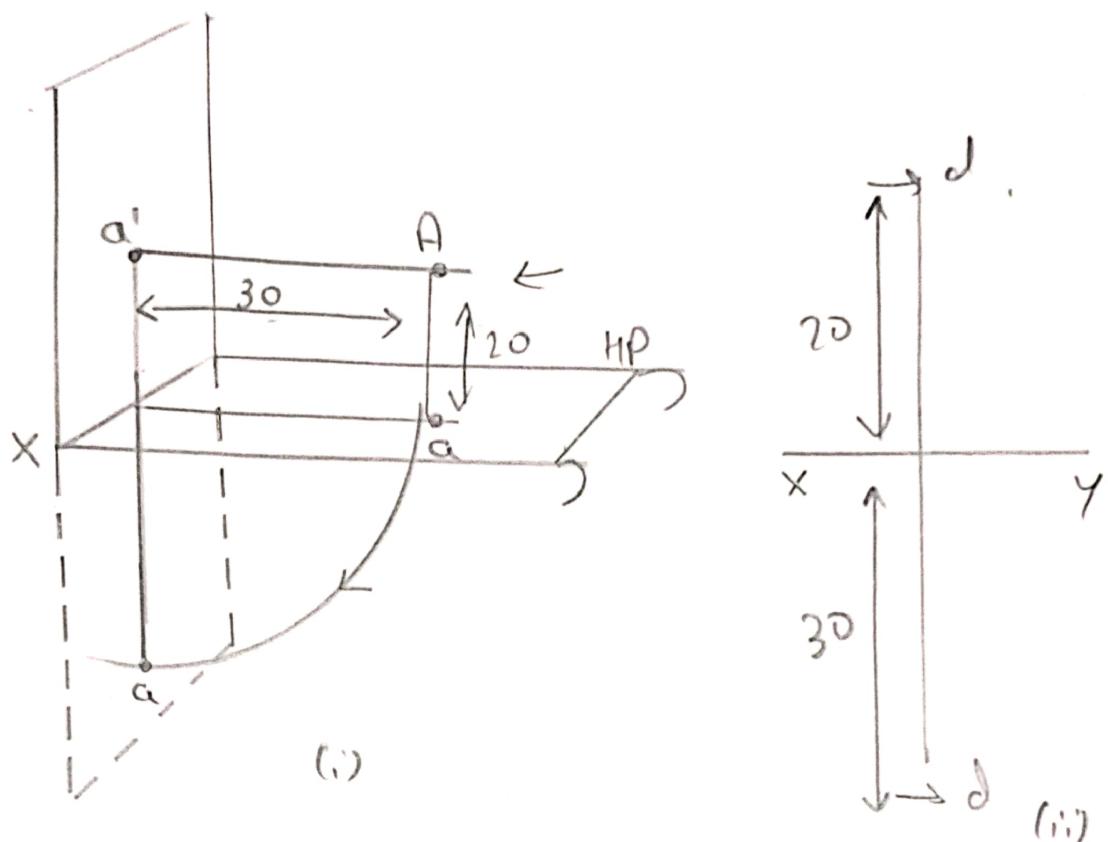
I would like to take this opportunity to express my deep sense of gratitude to all who helped me directly or indirectly during this work.

Firstly, I would like to thank our supervisors....."APPURVA JAIN".....for being a great mentor and the best adviser I could ever have. His advice, encouragement and critics are source of innovative ideas, inspiration and causes behind the successful completion of this report. The confidence shown on me by him was the biggest source of inspiration for me. It has been a privilege working with him from last one semester .I am highly obliged to all the faculty members of Mechanical Engineering

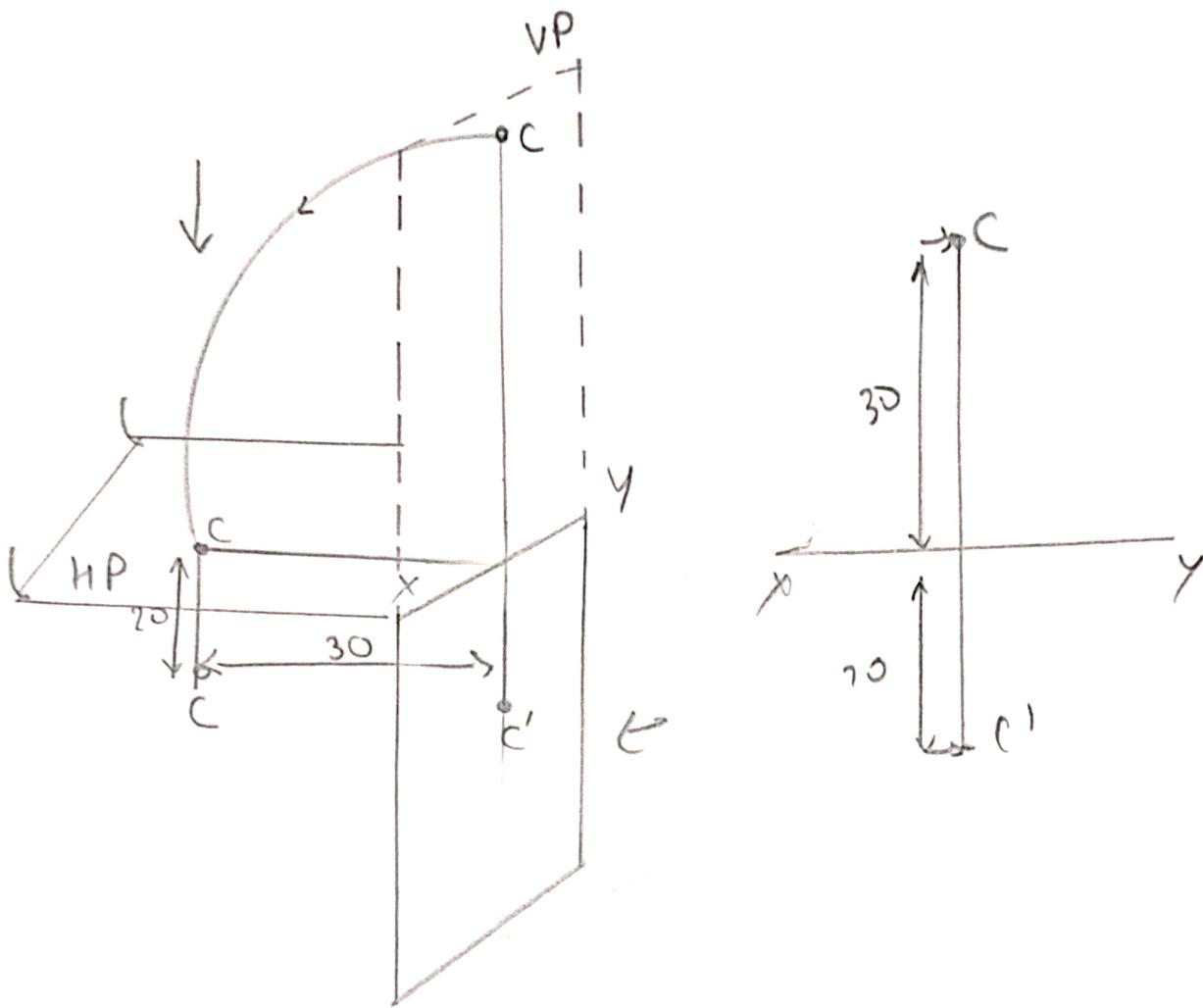
Department for their support and encouragement.

## [Unit - 2 Projection of Points & line]

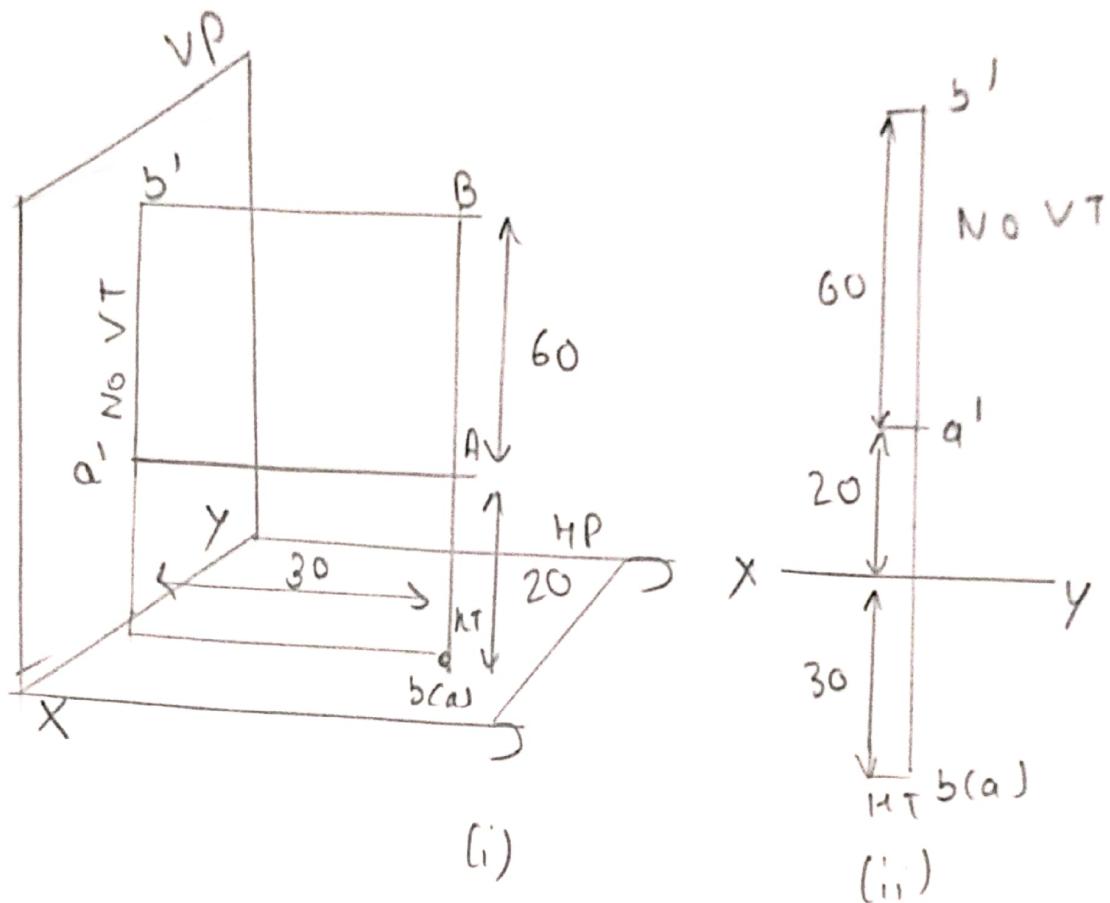
Q. A point A is 20 mm above HP and 30 mm in front VP. Draw its Projections.



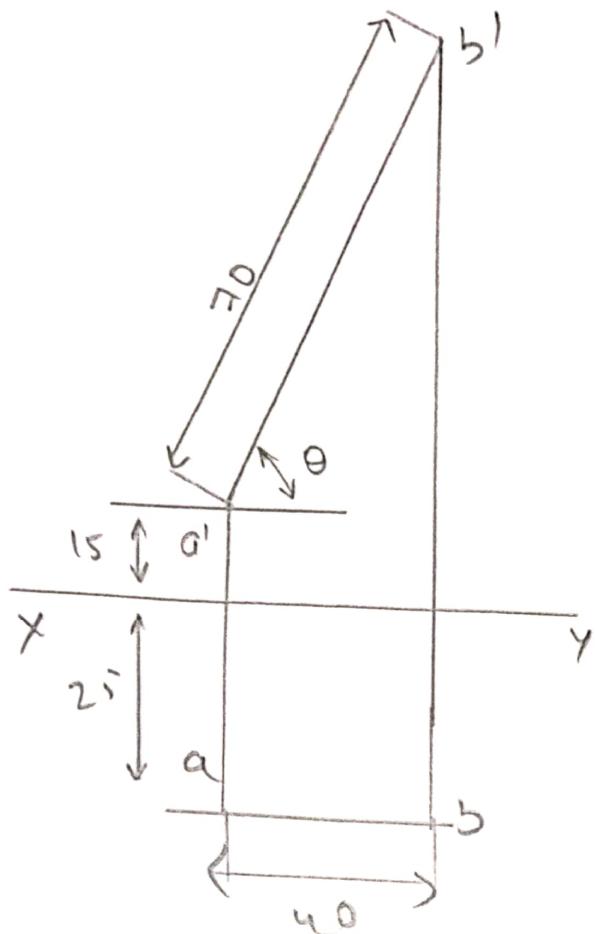
Q2. A point C is 20 mm below HP and 30 mm behind VP.  
Draw its projections.



Q3. A line AB 60 mm long has its end 20 mm above HP and 30 mm in front of VP. The line is kept perpendicular to HP and parallel to VP. Draw its projection. Also mark the traces

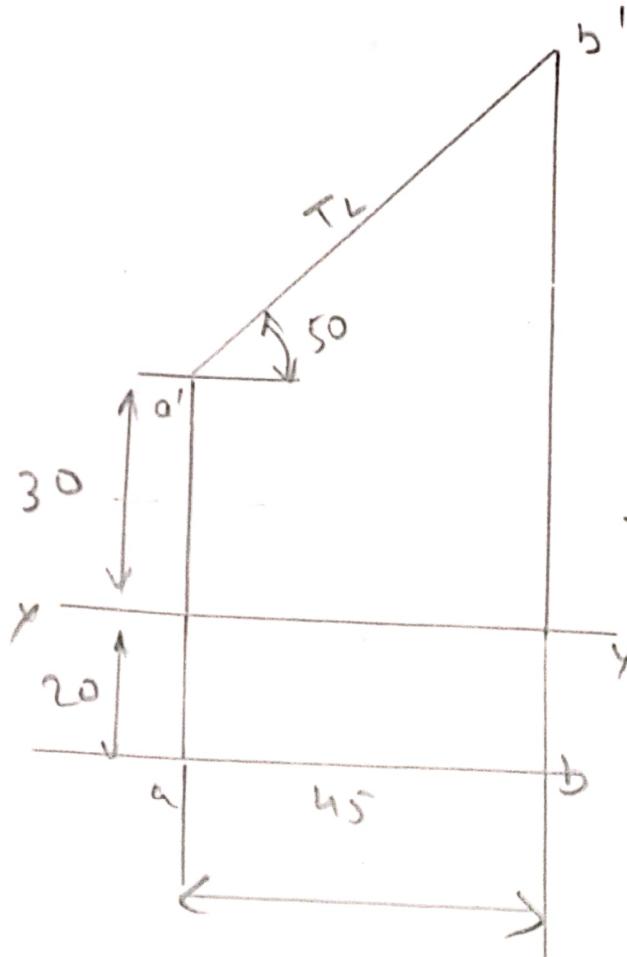


Q.4. A line AB 70 mm long has its end A 15 mm above HP and 25 mm in front of VP. Its top view (plan) has a length of 40 mm. Draw its projections and find the inclination of the line with HP.



Answer  $\theta = 55^\circ$

O.S. A line AB has its end 30 mm above HP and 20 mm front of VP. Its plan has a length of 45 mm. The line is inclined at  $50^\circ$  to HP and parallel to VP. Draw its projections and find the true length of the line.

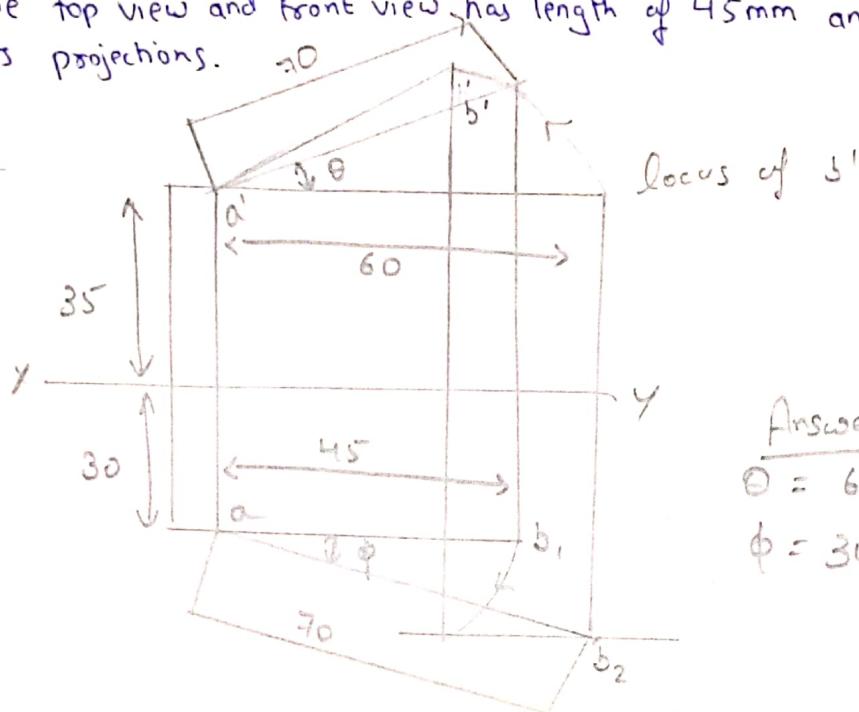


Answer

True length: 70mm

(1)

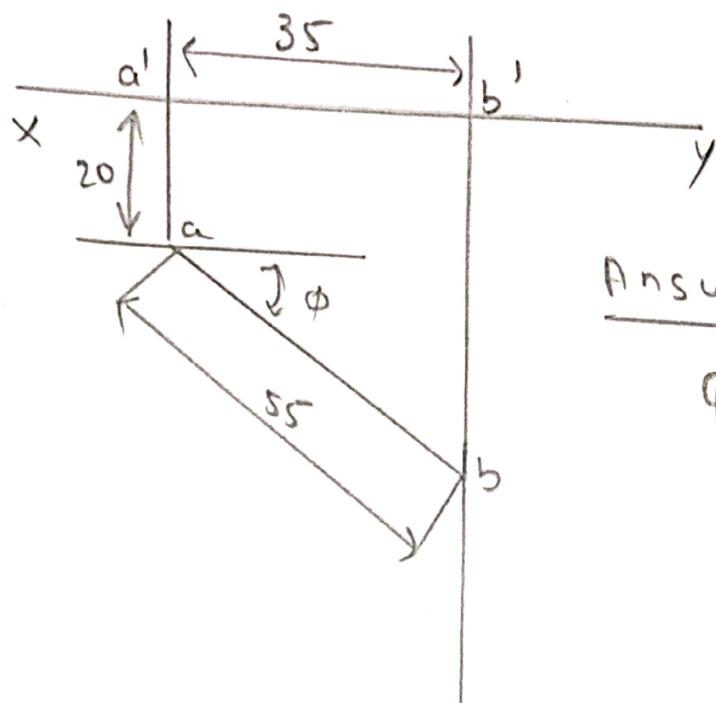
Ques:- A line AB 70 mm long has its end A 35 mm above HP and 30 mm in front of V.P. The top view and front view has length of 45 mm and 60 mm respectively. Draw its projections.



Answers

$$\theta = 60^\circ$$
$$\phi = 31^\circ$$

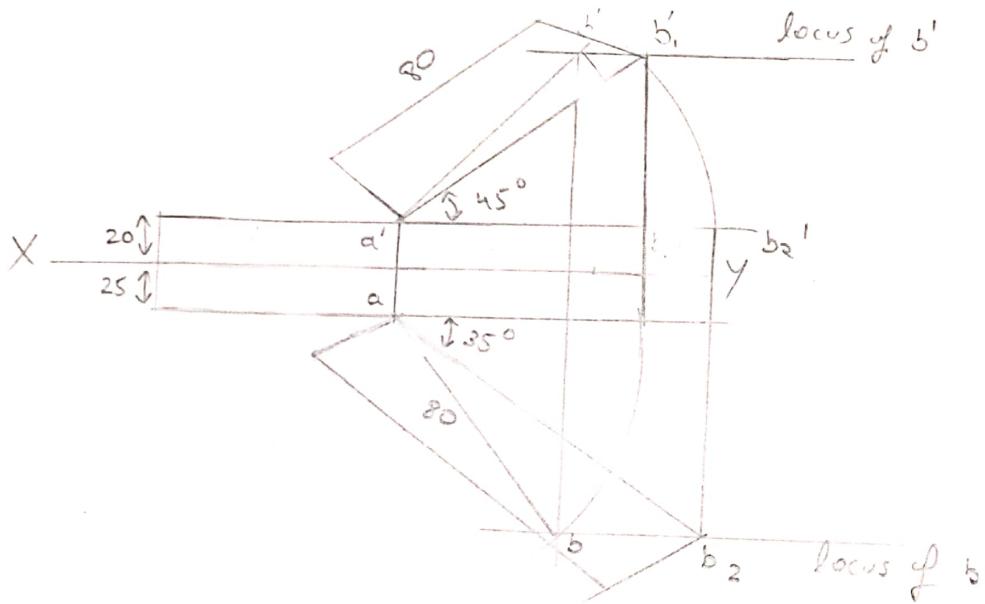
Q.6 A line AB 55 mm long is in HP and inclined to VP. The end A is 20 mm in front of VP. The length of front view is 35 mm. Draw the projections of the line and also find the inclination of the line with VP.



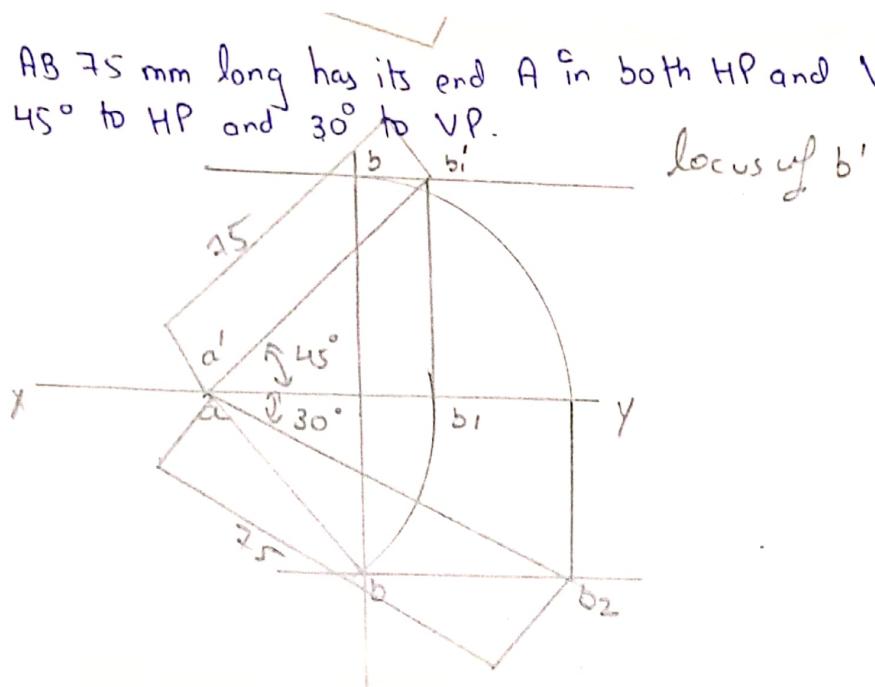
Answer

$$\phi = 50^\circ$$

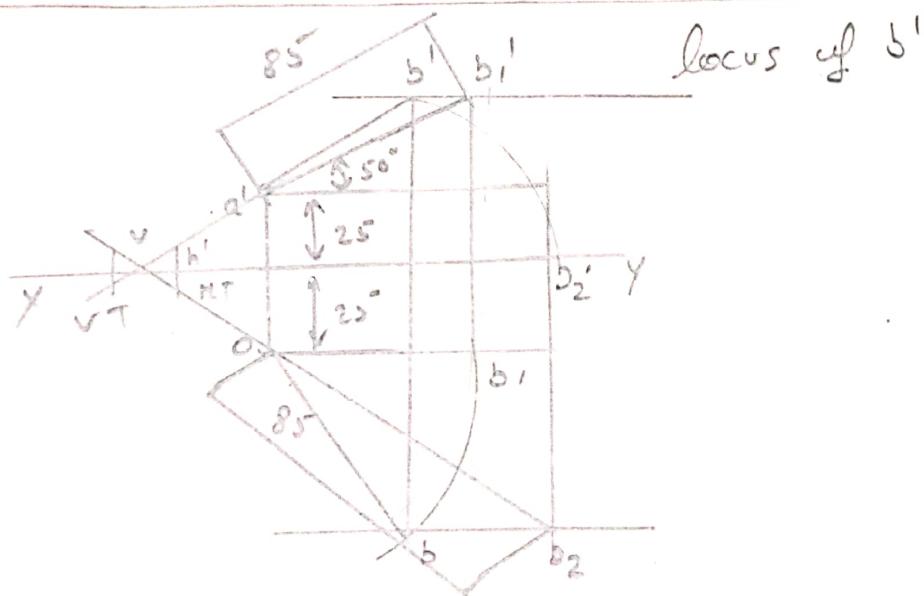
Ques. A line AB 80 mm long has its end A 20 mm above HP and 25 mm in front of VP. The line is inclined at  $45^\circ$  to HP and  $35^\circ$  to VP. Draw its Projection.



Ques 1 A line AB 75 mm long has its end A in both HP and VP. The line is kept inclined at  $45^\circ$  to HP and  $30^\circ$  to VP.

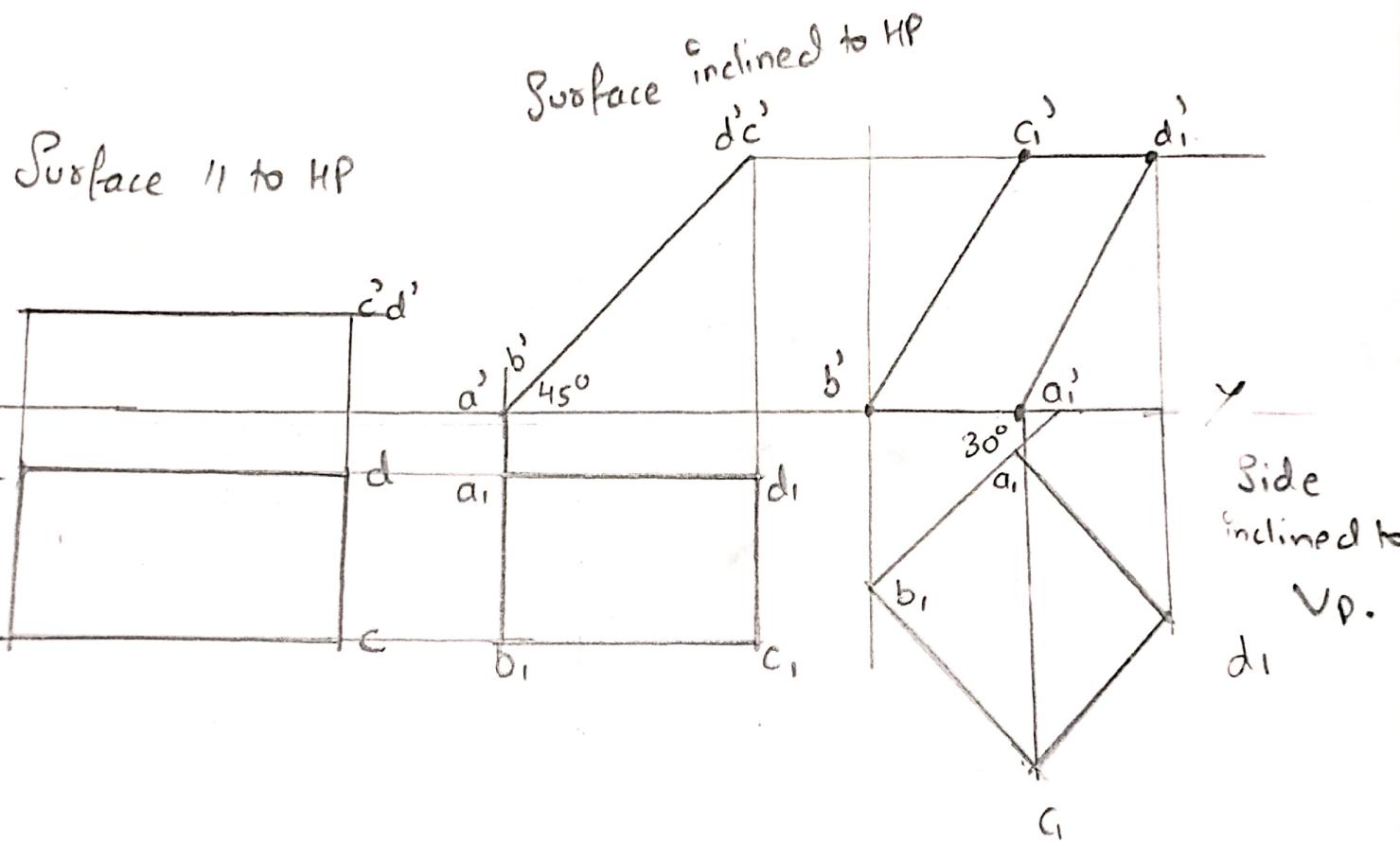


Ques! - A line AB 85 mm long has its end A 25 mm away from both the reference planes and is in the first quadrant. The line is inclined at  $50^\circ$  to HP and  $30^\circ$  to VP. Draw its projections and mark the traces of the line.

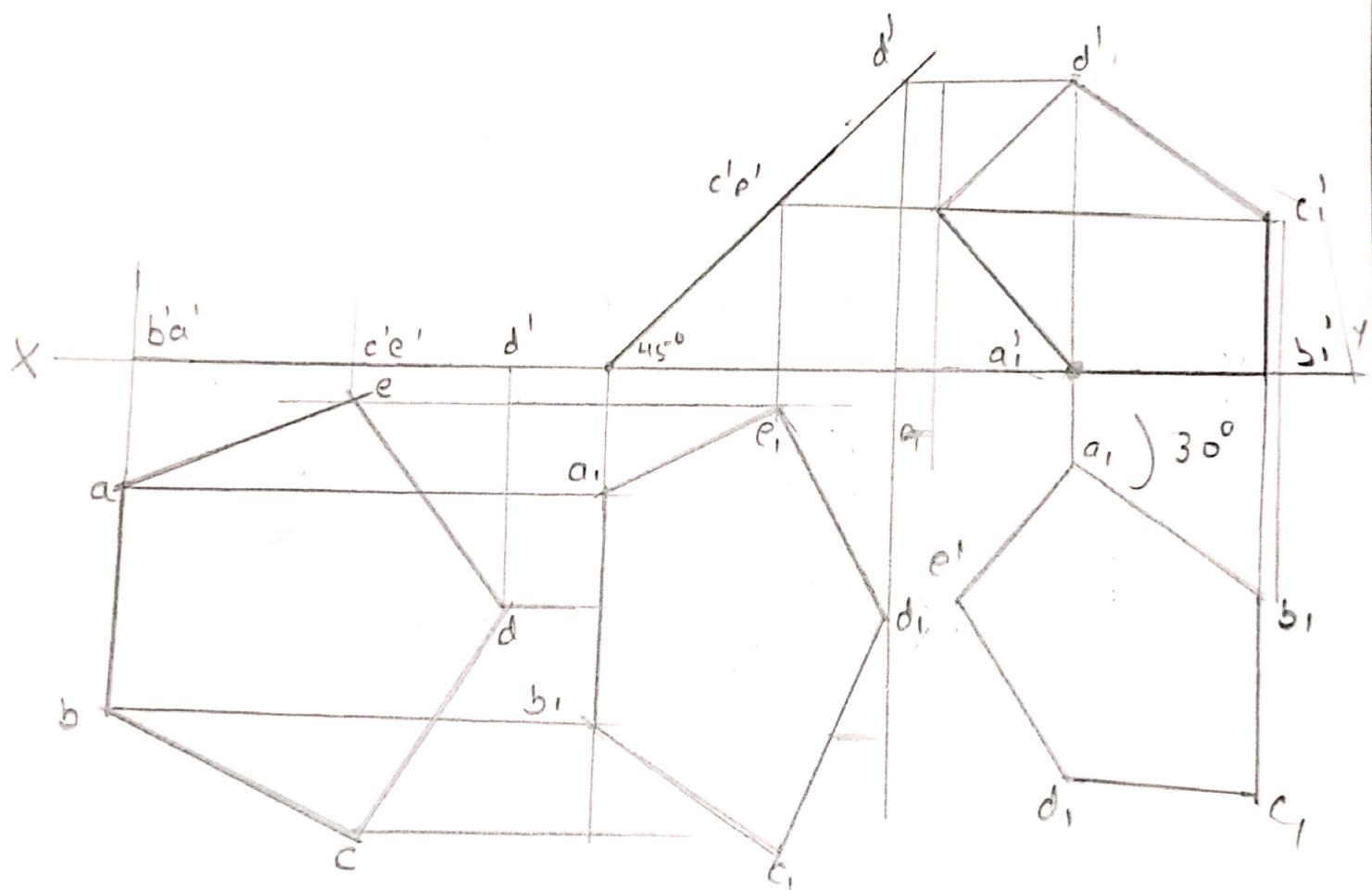


## Unit - 3 (planes)

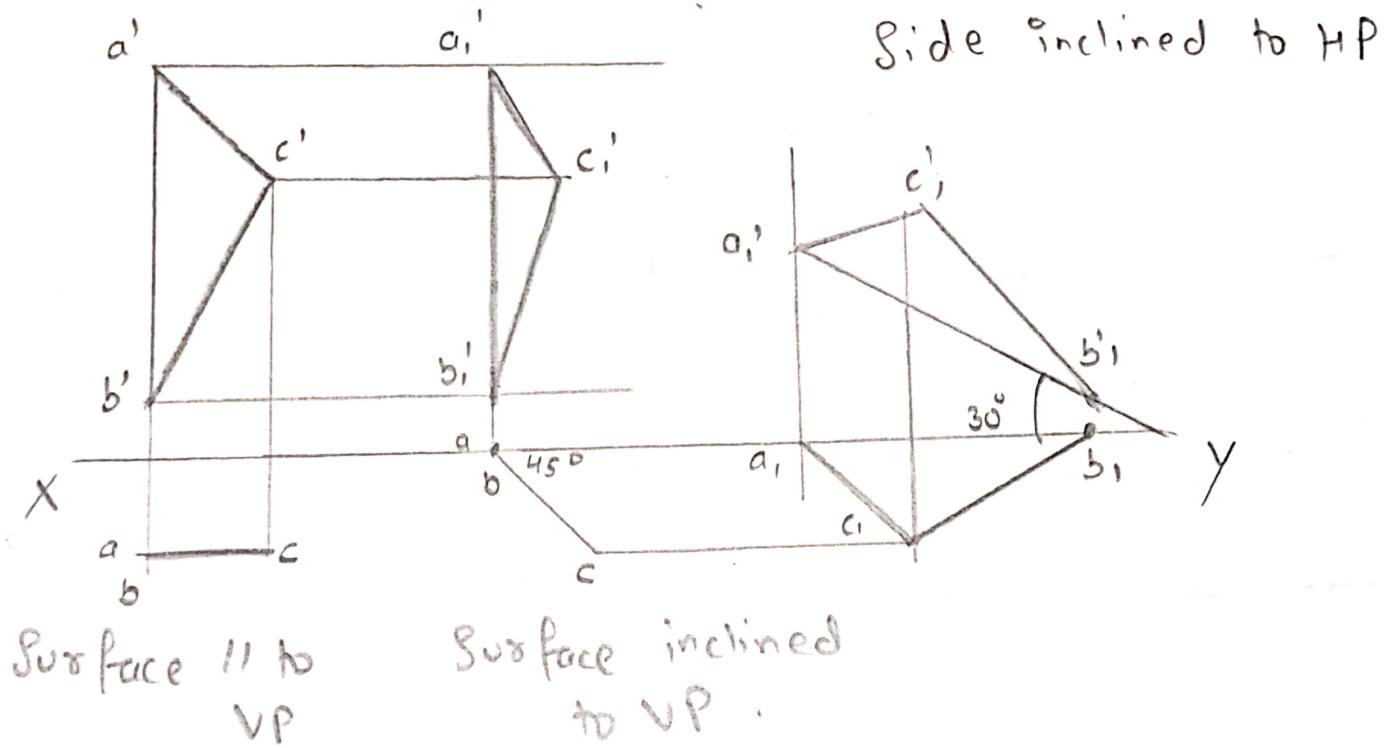
Q.1. Rectangle 30 mm and 50 mm sides is resting on HP on one small sides is resting on HP on once small side which is  $30^\circ$  inclined to VP . while the surface of the plane makes  $45^\circ$  inclination with HP. Draw it's projections.



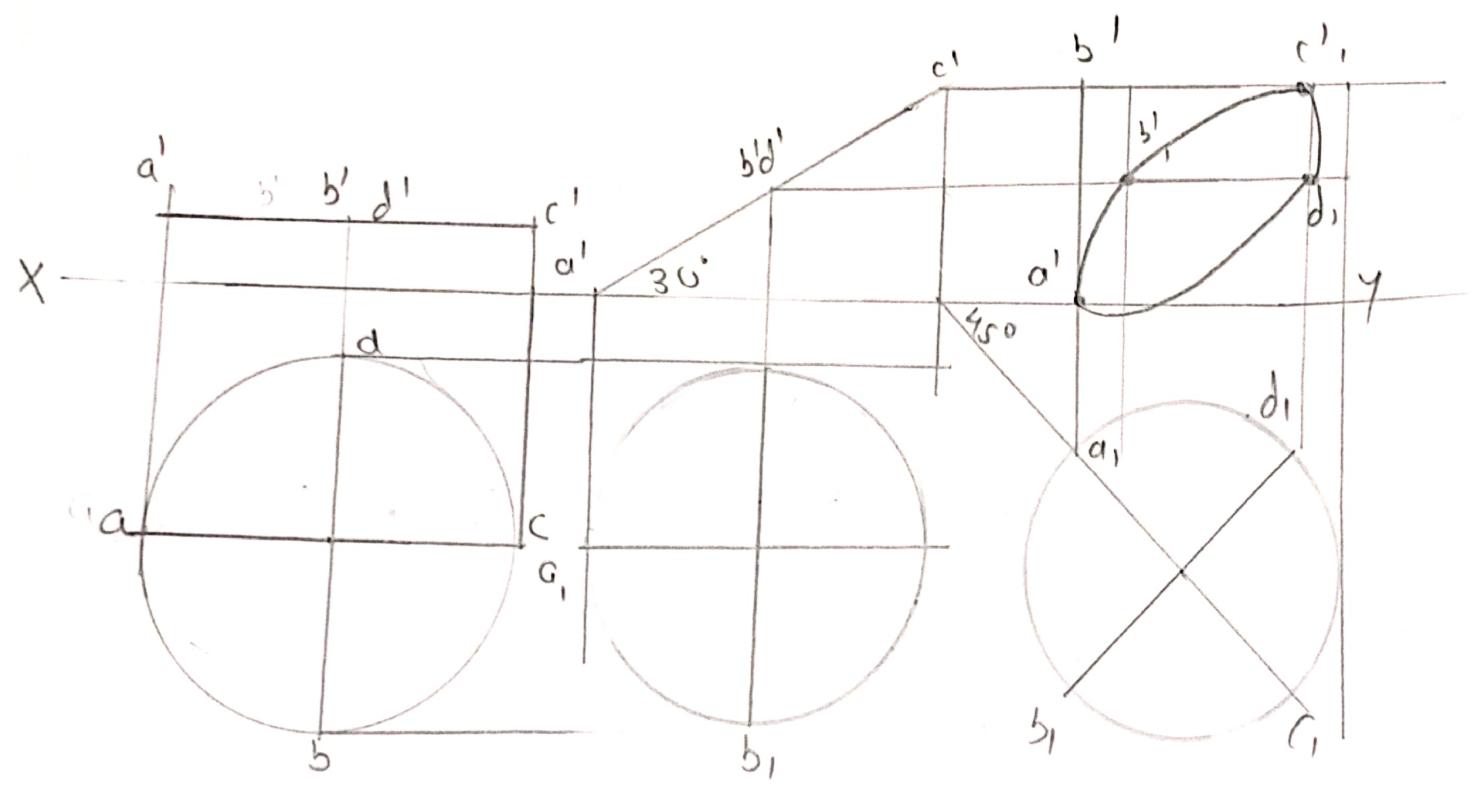
Q.4. A regular pentagon of 30 mm sides is resting on HP on one of its sides with its surface  $45^\circ$  inclined to HP. Draw its projection when the side in HP makes  $30^\circ$  angle with VP?



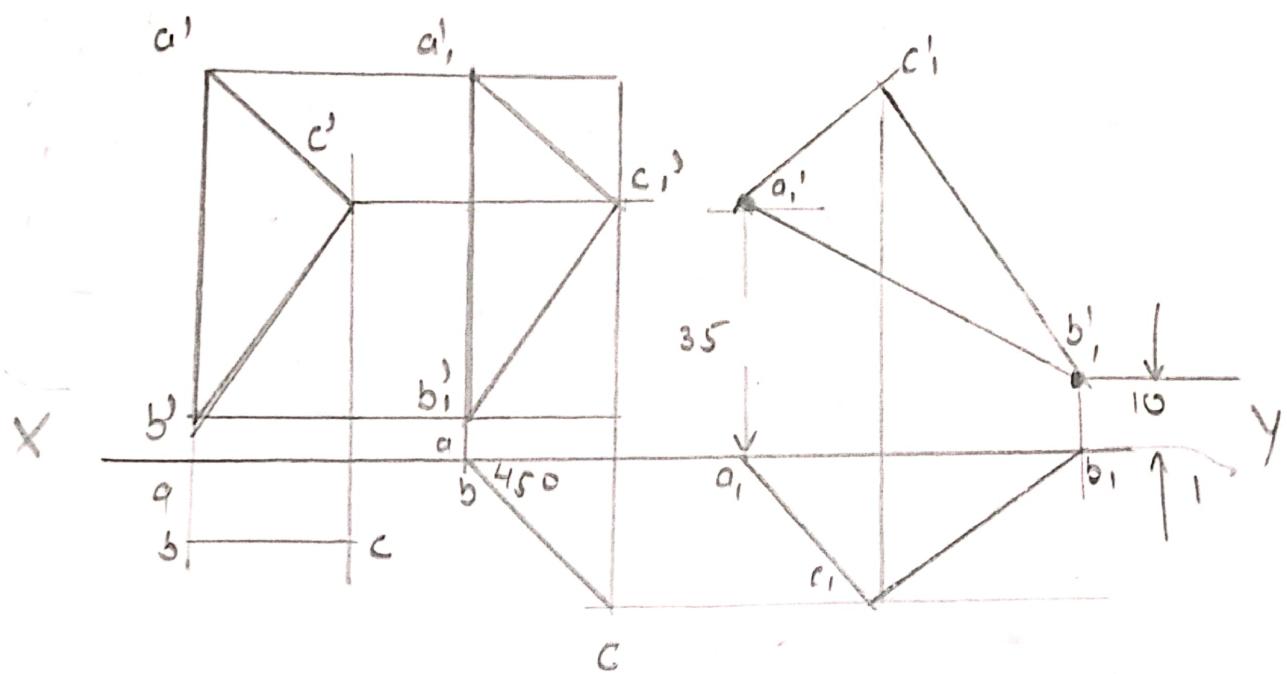
Q.2. A  $30^\circ$ - $60^\circ$  setsquare of longest side 100 mm long, is in VP and  $30^\circ$  inclined to HP while it's surface is  $45^\circ$  inclined to VP. Draw it's projections.



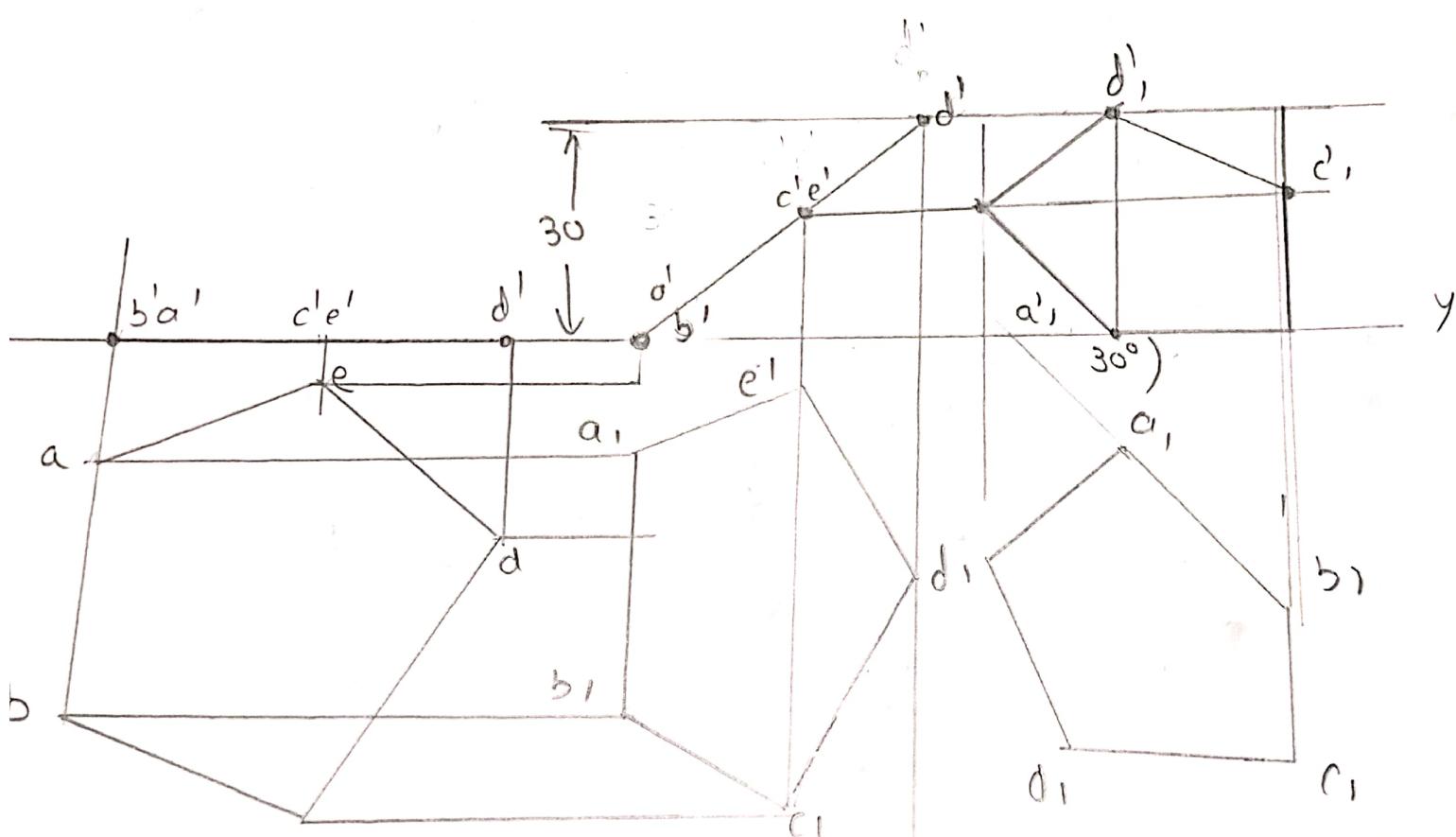
Q.6. A circle of 50 mm diameter is resting on HP on end A of it's diameter AC inclined to HP while it's TV which is inclined to VP. Draw it's projection is  $45^\circ$ .



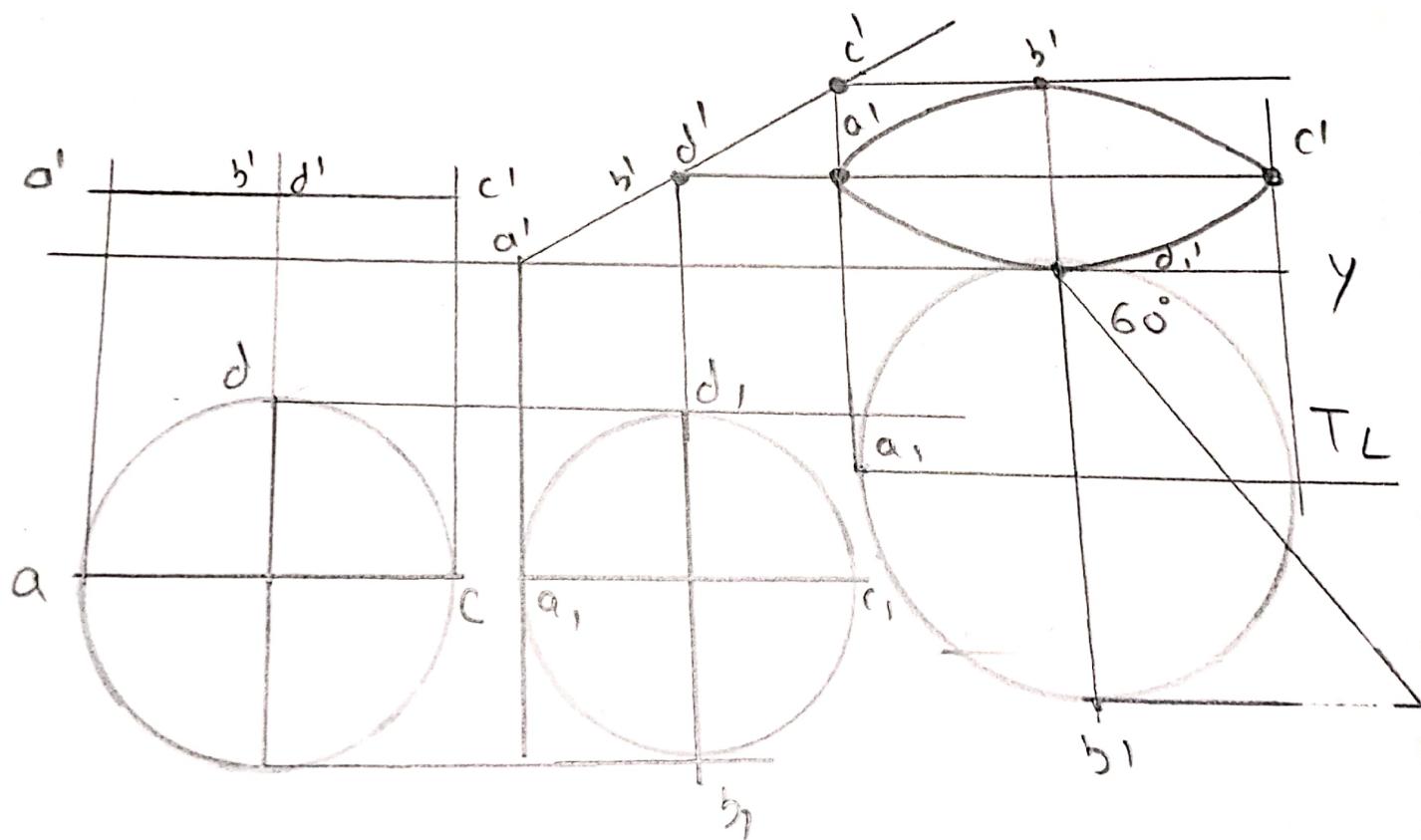
Q.3- A  $30^\circ$ - $60^\circ$  set square of longest side 100 mm long is in VP and its square  $45^\circ$  inclined to VP. One end of longest side is 10 mm and other end is 35 mm above HP. Draw its projections.



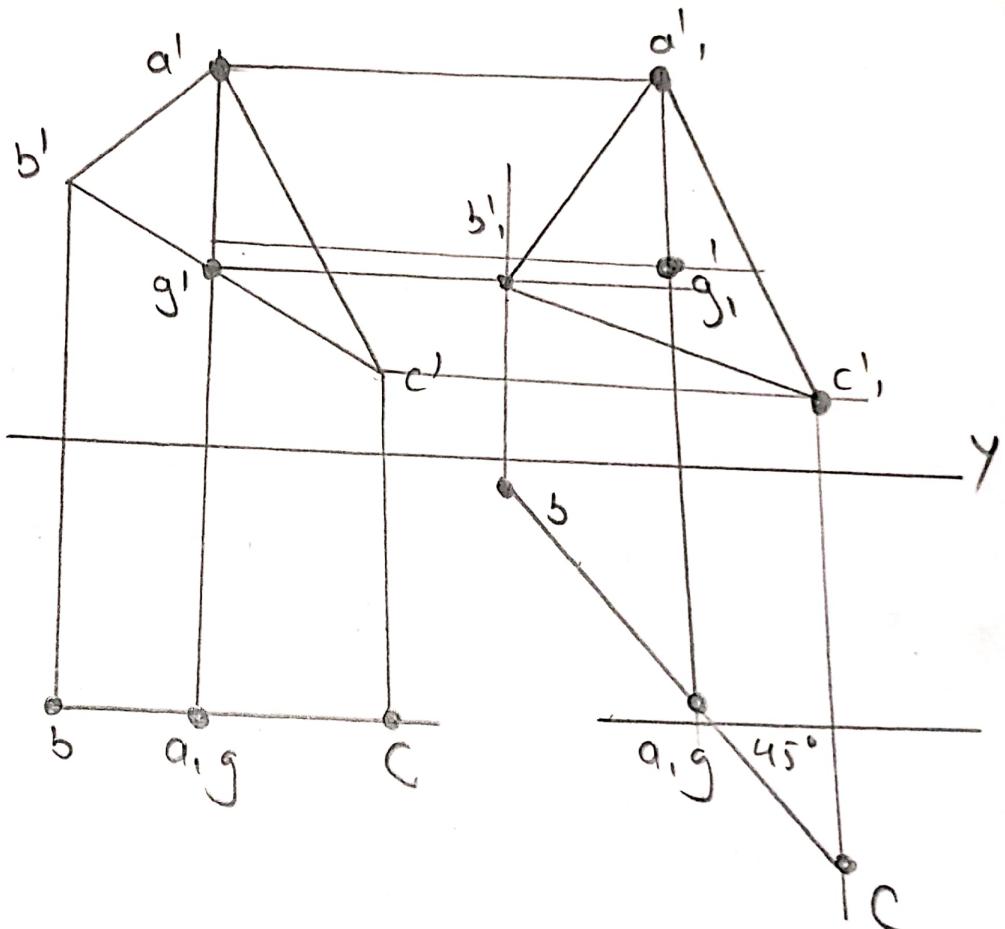
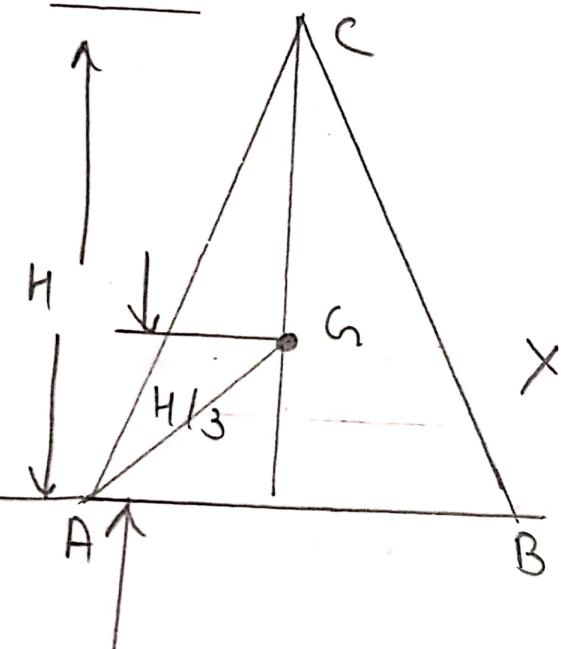
Q.S. A regular pentagon of 30 mm sides is resting on HP on one of its sides while its opposite vertex (corner) is 30 mm above HP. Draw projections when side in HP is 30° inclined to VP.



Q.7. End A of diameter AB of circle is in HP And end B in VP. Diameter AB, 50 mm long is  $30^\circ$  &  $60^\circ$  inclined to HP & VP respectively. Draw projections of circle.

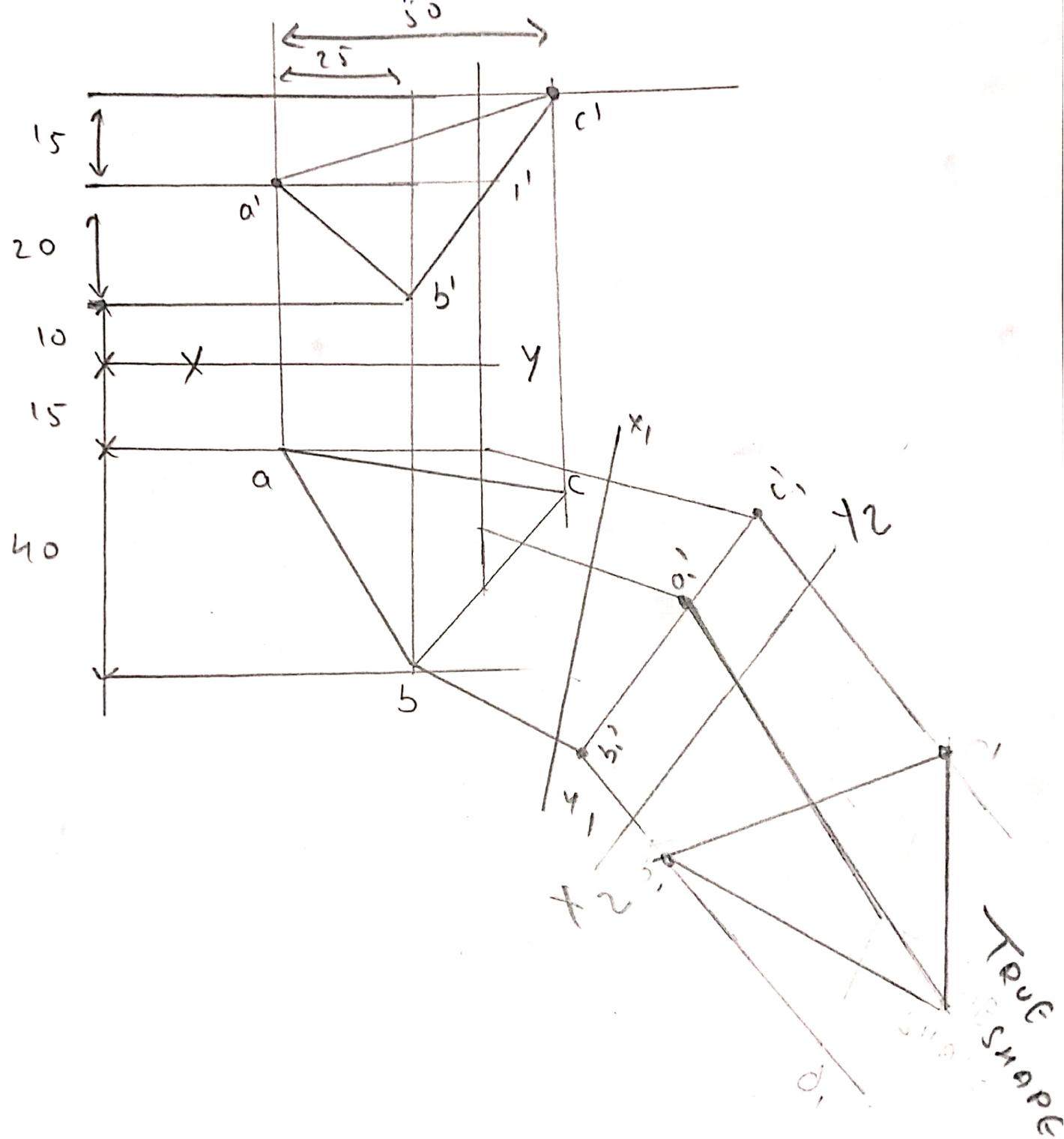


Q.8. An isosceles triangle of 40 mm long base side, 60 mm long altitude is freely suspended from one corner of Base side. It's plane is  $45^\circ$  inclined to Up. Draw its Projections.

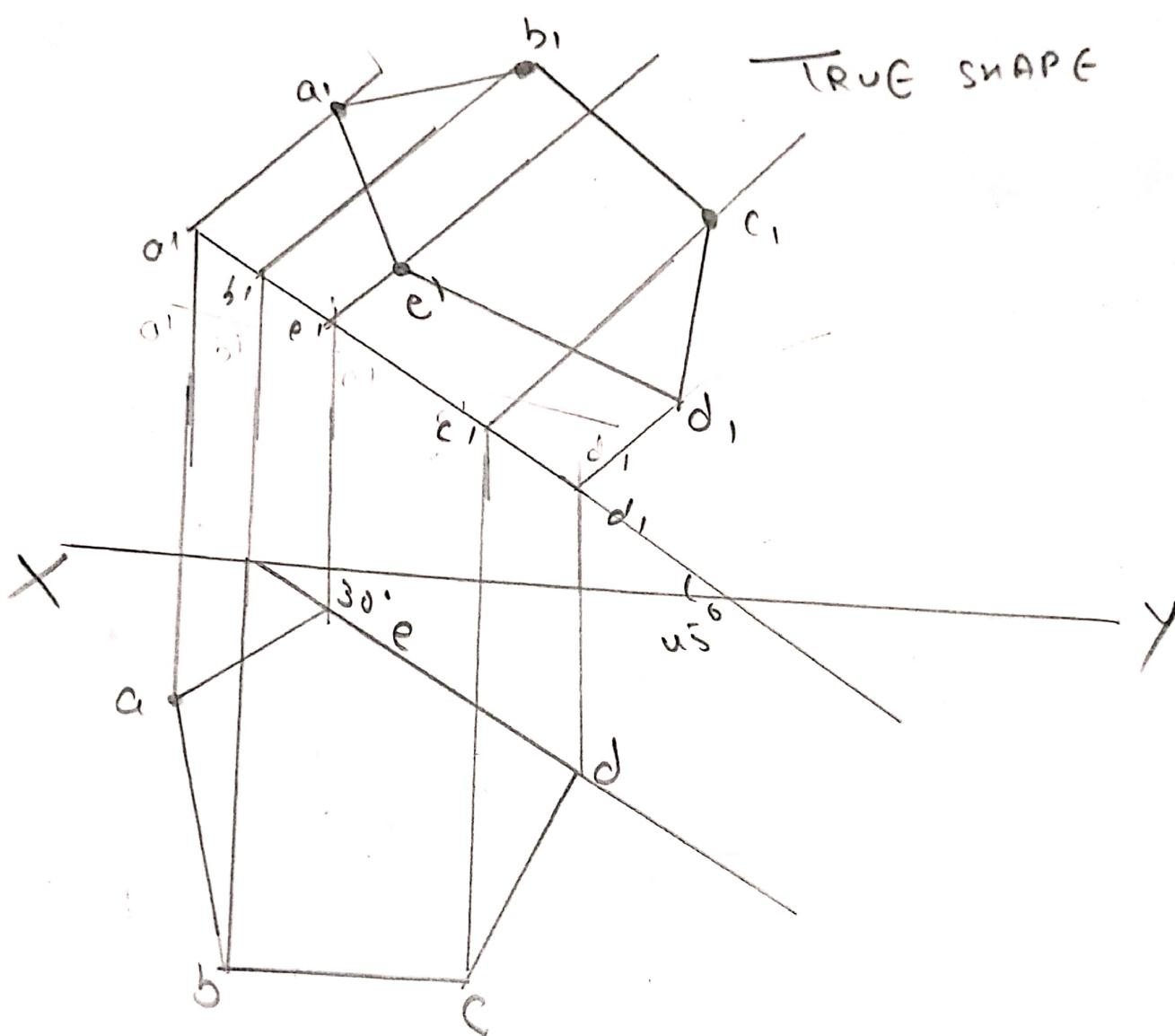


Q.9. FV & TV of a triangular plate are shown.

Determine its true shape.

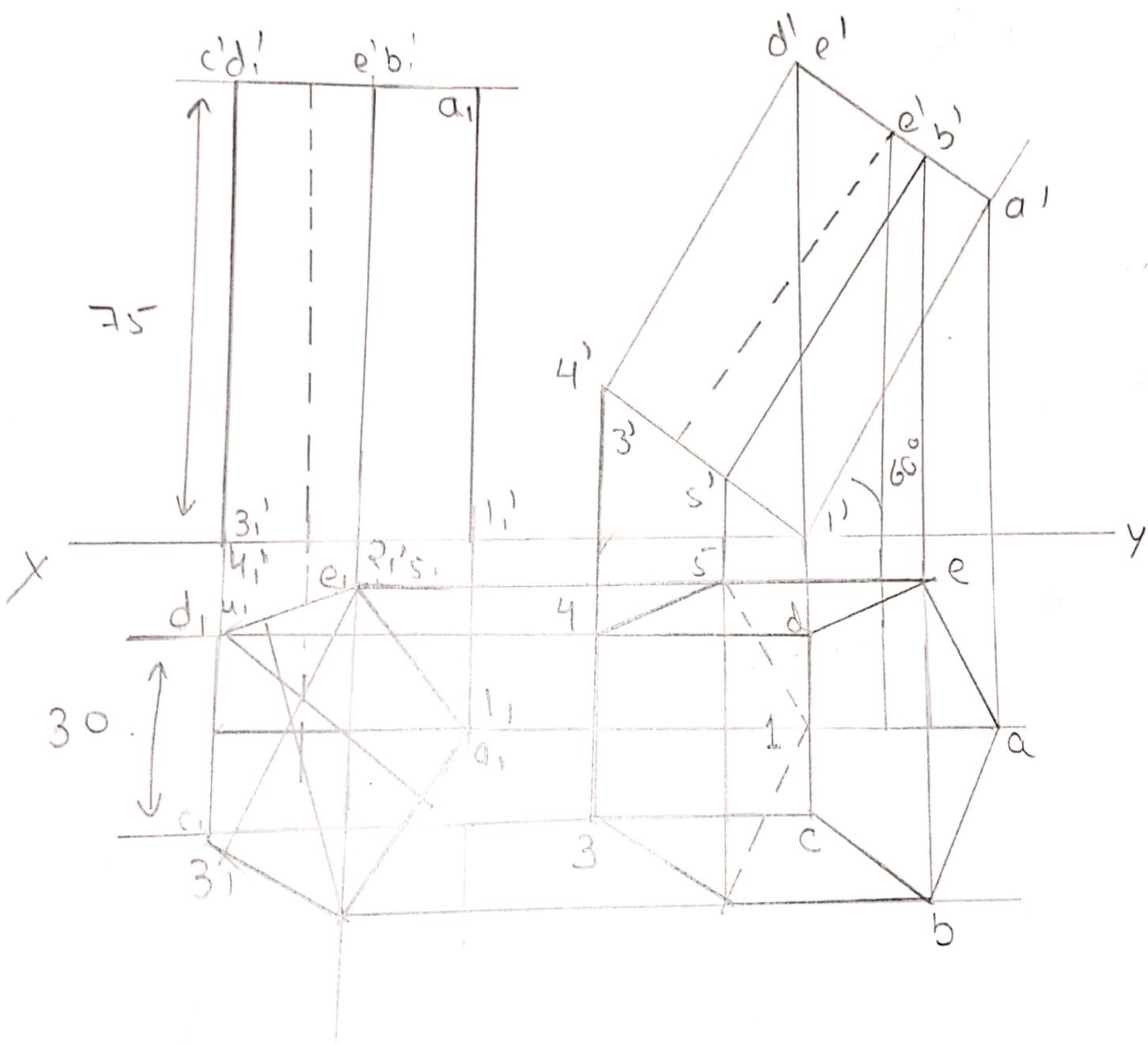


Q.10. Draw a regular pentagon of 30 mm sides with one side 30° inclined to xy. This figure is Tu of some plane whose Fr is A line 45° inclined to xy. Determine it's true shape.

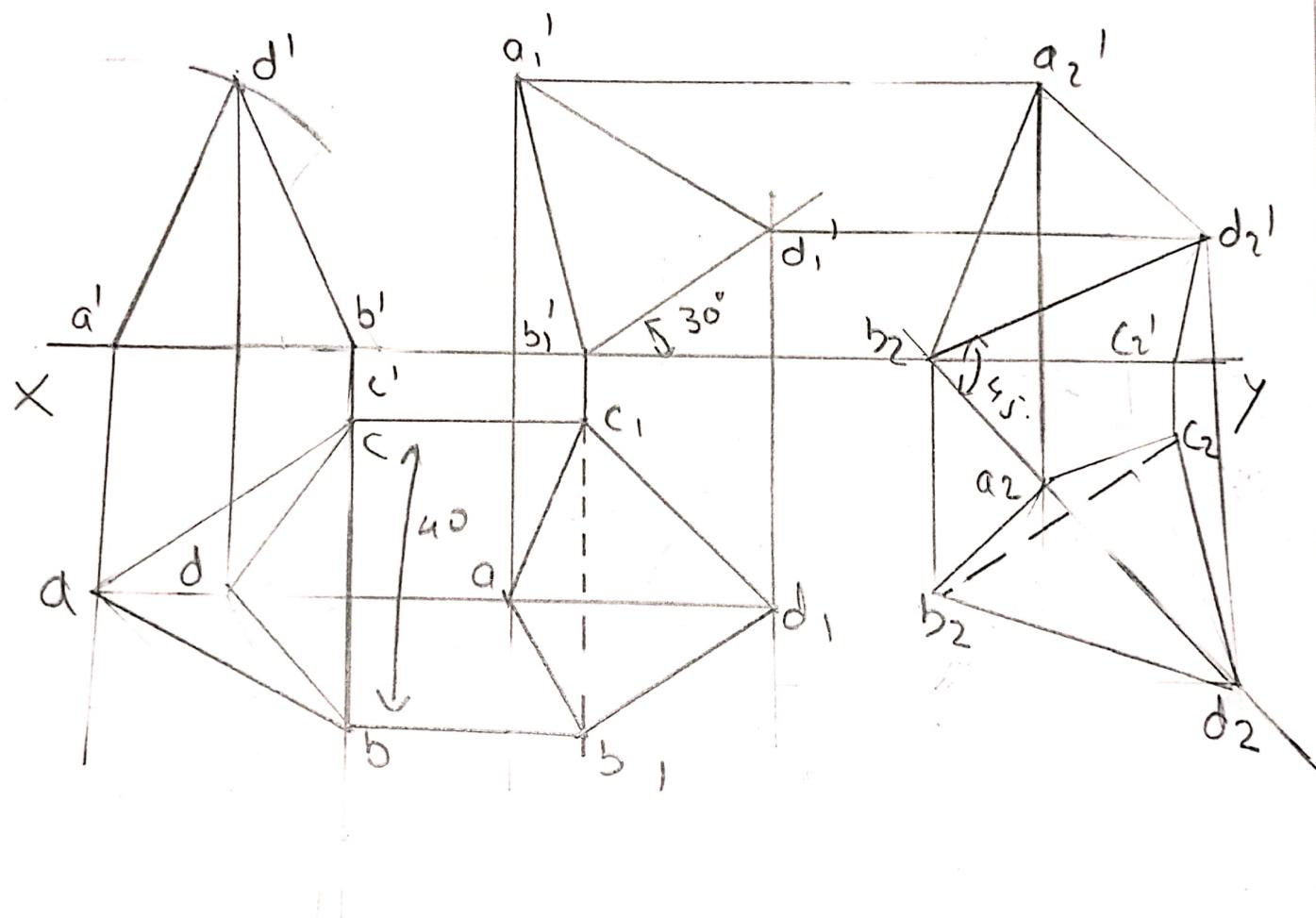


# Unit - 4 (Projection of ~~Solid~~ Solids)

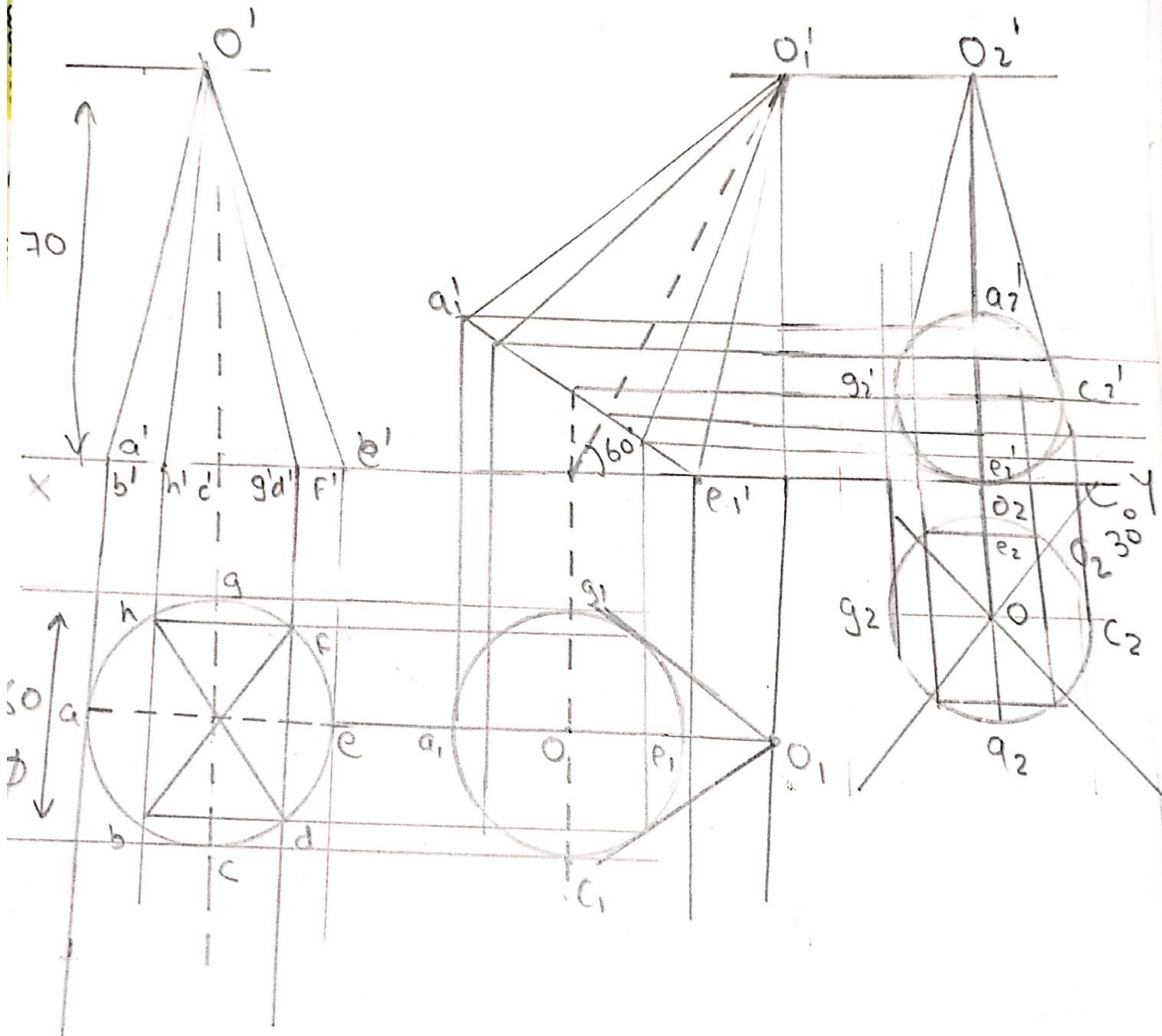
Q1. A right regular pentagonal prism, side of base 30 mm and height of axis as 75 mm rests on HP on one of its base corners such that its long edge containing the corner is inclined to HP at  $60^\circ$ . Draw its projections.



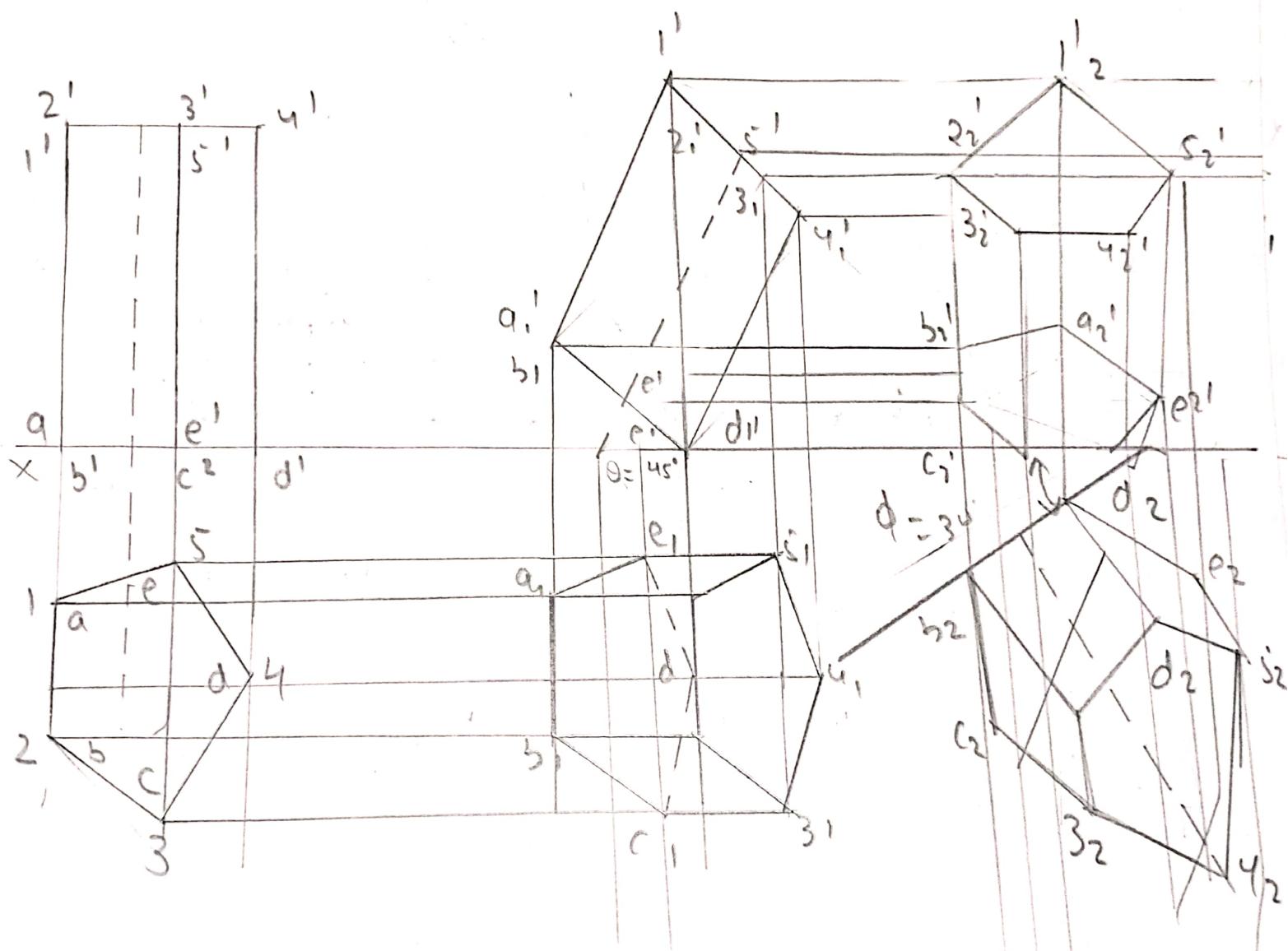
Q.2. A tetrahedron of 40 mm long edges, rests on HP on one of its edges such that the face containing that edge is inclined to HP at  $30^\circ$  and the same edge is inclined at  $45^\circ$  to VP. Draw the projections of the solid.



Q.3. A cone, diameter of base 60 mm and height 70 mm, is resting on HP on the point of periphery of the base. Axis of the cone makes  $60^\circ$  with HP and  $30^\circ$  with the VP. Draw the projections of the cone, when the apex is nearer to the VP.



Q.4. A regular pentagonal prism of 25 mm long edges and axis 70 mm long rests on HP on one of its corner of the base. The slant edge passing through corner makes  $45^\circ$  with HP and the side opposite to the same corner makes  $30^\circ$  with VP. Draw its projections.



O.S. A regular hexagonal prism of 30 mm sides and axis 80 mm long is resting on HP on one of its corners of the base. The axis makes  $30^\circ$  with HP and plan of the axis makes  $45^\circ$  with the VP. Draw its projections.

