BME453- COMPUTER AIDED MACHINE DRAWING-II LAB

Course Outcome (CO)		Bloom's Knowledge Level (KL)
CO 1	Understand and apply 3D software to develop a part model	K3
CO 2	Understand conventional representation of machine components, and welded joints	K2
CO 3	Understand and apply the basis of fit or limit system	K3
CO 4	Understand about Plummer Block Bearing, Machine Vice, Screw Jack, Engine Stuffing box.	K2
CO 5	Create 3D part models and assemblies of various machine components	K3

DETAILED SYLLABUS

Unit I

Introduction to Part Modelling: Introduction to part modelling of simple machine components using any 3D software (like CATIA, PROE, UGNX, Autodesk Inventor or SOLIDWORKS) covering all commands/ features to develop a part model (Minimum 24 machine components need to be developed).

Unit II

Introduction: Conventional representation of machine components and materials, Conventional representation of surface finish,Roughness number symbol, Symbols of Machine elements and welded joints. Classification of Drawings: Machine drawings,Production drawing, part drawing and assembly drawing. Introduction to detail drawing and bill of materials (BOM).

Unit III

Limits, Fits and Tolerances: General aspects, Nominal size and basic dimensions, Definitions, Basis of fit or limit system, Systems of specifying tolerances, Designation of holes, Shafts and fits, commonly used holes and shafts. List of Standard Abbreviation used.

Unit IV

Part Modelling & Assemblies of: Plummer Block Bearing, Machine Vice, Screw Jack, Engine Stuffing box, Lathe Tailstock, Feed Check Valve and Rams Bottom Safety Valve.

Note: All drawing conforms to BIS Codes.

Books and References:

1. Textbook of Machine Drawing, K C John, PHI.

2. Machine Drawing by K.R. Gopalakrishna, Subhas Stores.

3. A Textbook of Machine Drawing by PS Gill from S.K. Kataria& Sons.

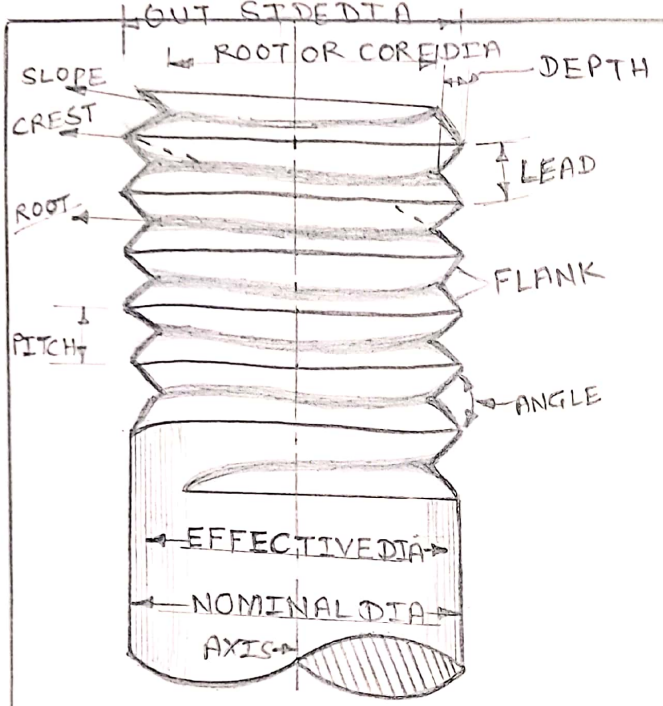
4. Machine Drawing-KL Narayana, P Kannaiah, KV Reddy, New Age publications.

5. Engineering Graphics with AutoCAD, Bethune, PHI.

6. Machine Drawing, N. Siddeshswar, P Kannaiah, VVS Shastry, Tata McGraw Hill.

7. Fundamentals of Machine Drawing, Dr Sadhu Singh & P L Shah, Prantice Hall India.

8. Autodesk Inventor by Examples, Sam Tikoo, Wiley.



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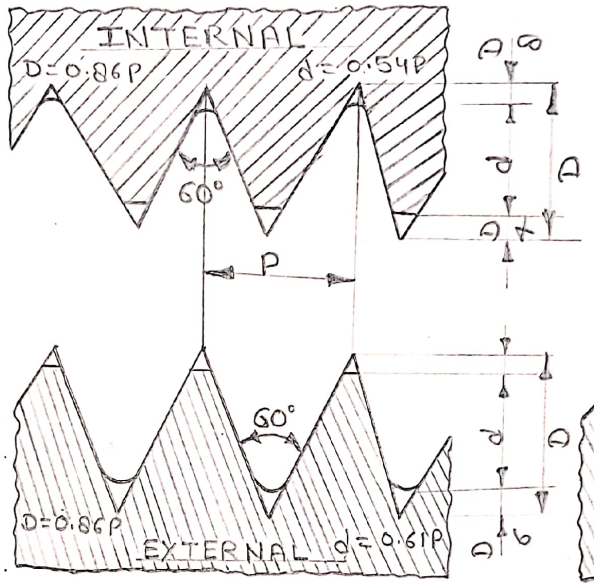

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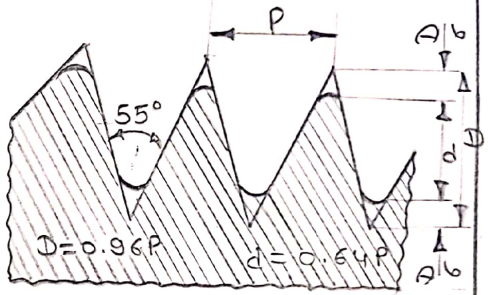

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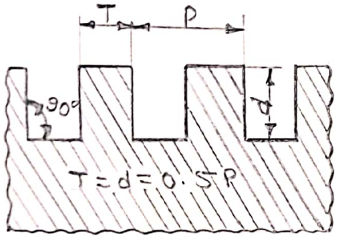

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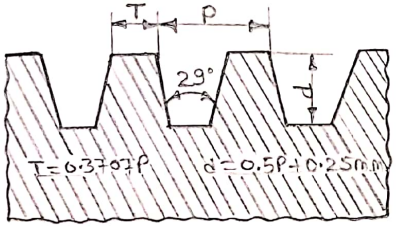

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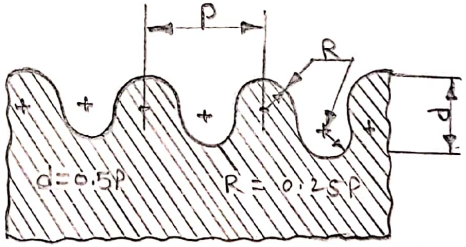

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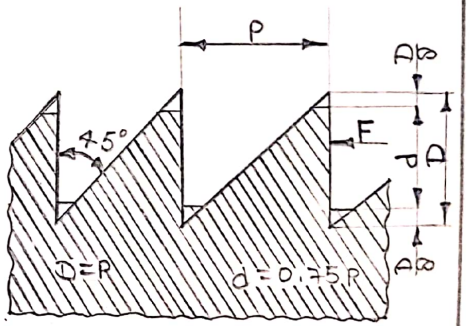

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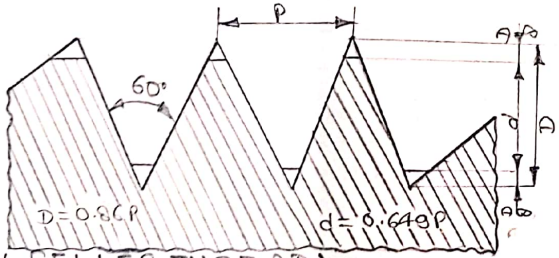

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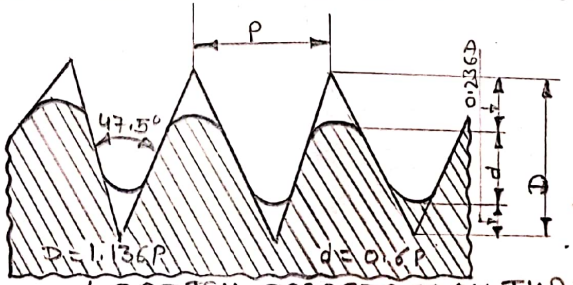

(BRITISH ASSOCIATION THREAD)

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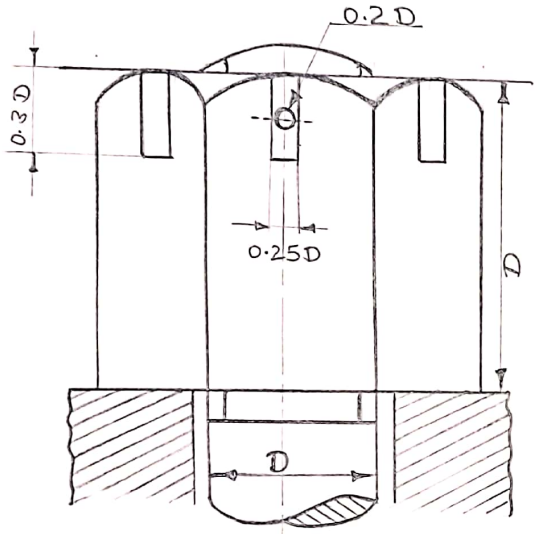
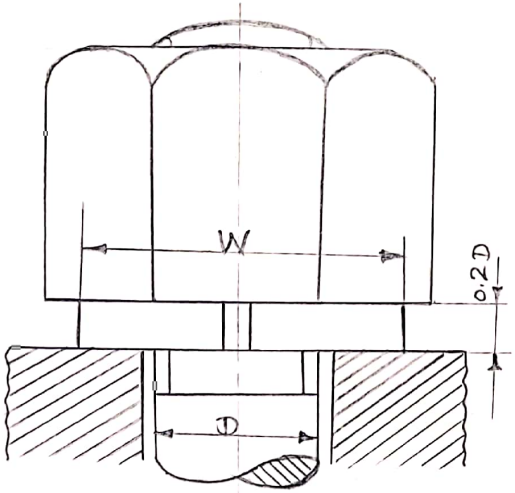
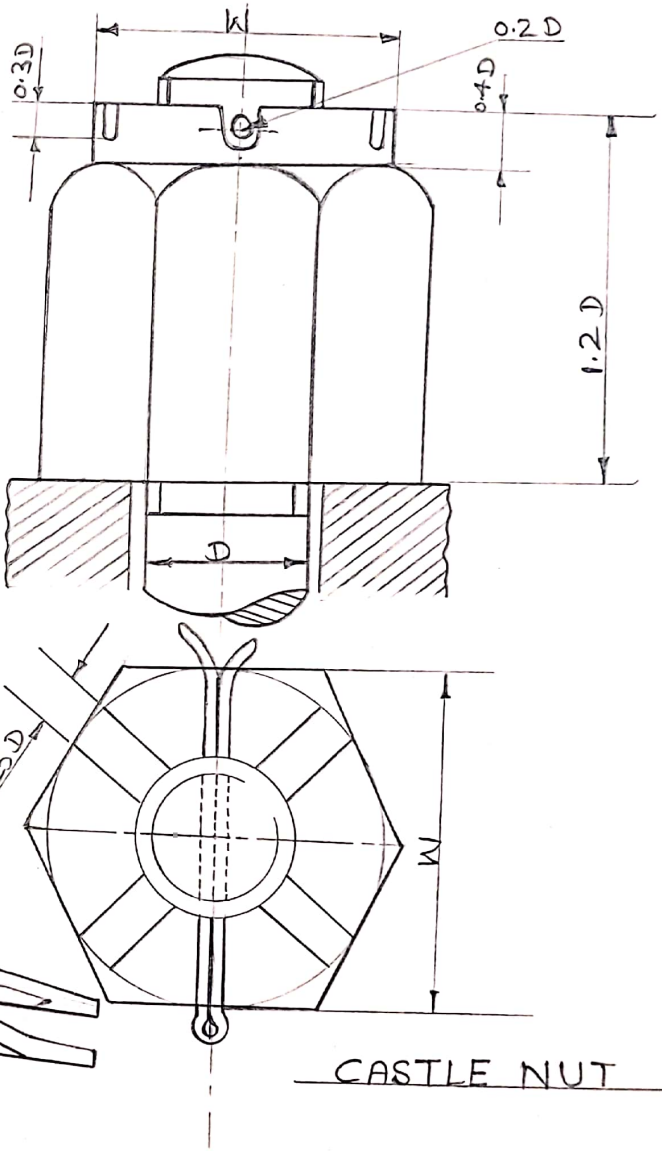


(SLOTTED NUT)



(iii)

(SPRING WASHER)



(ii)

CASTLE NUT

(i)

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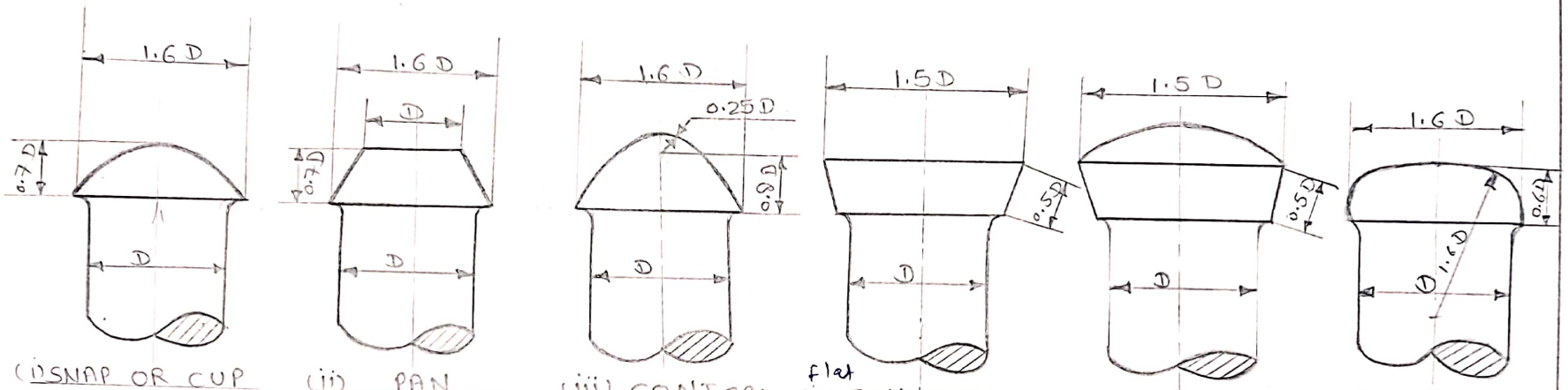
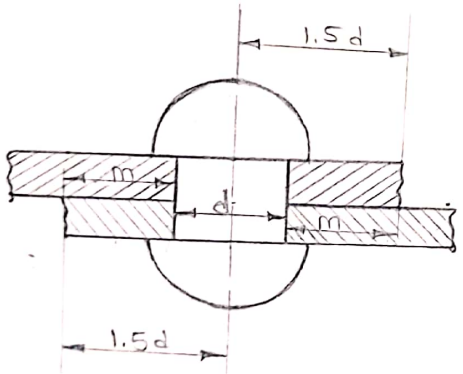


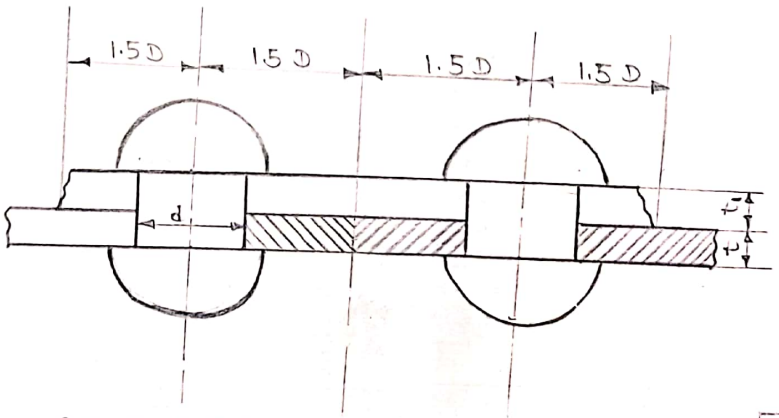
(i) SNAP OR CUP (ii) PAN (iii) CONICAL (iv) COUNTERSUNK (v) ROUNDED C. (vi) ELLIPSE

Counter sunk

FORMS AND PROPORTIONS OF RIVET HEADS



SINGLE RIVETED LAP JOINT



SINGLE RIVETED (SINGLE STRAP) BUTT JOINT

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BRANCH	-
SEM	-
ROLL NO.	-
DATE	-
TITLE	- RIVETED JOINT

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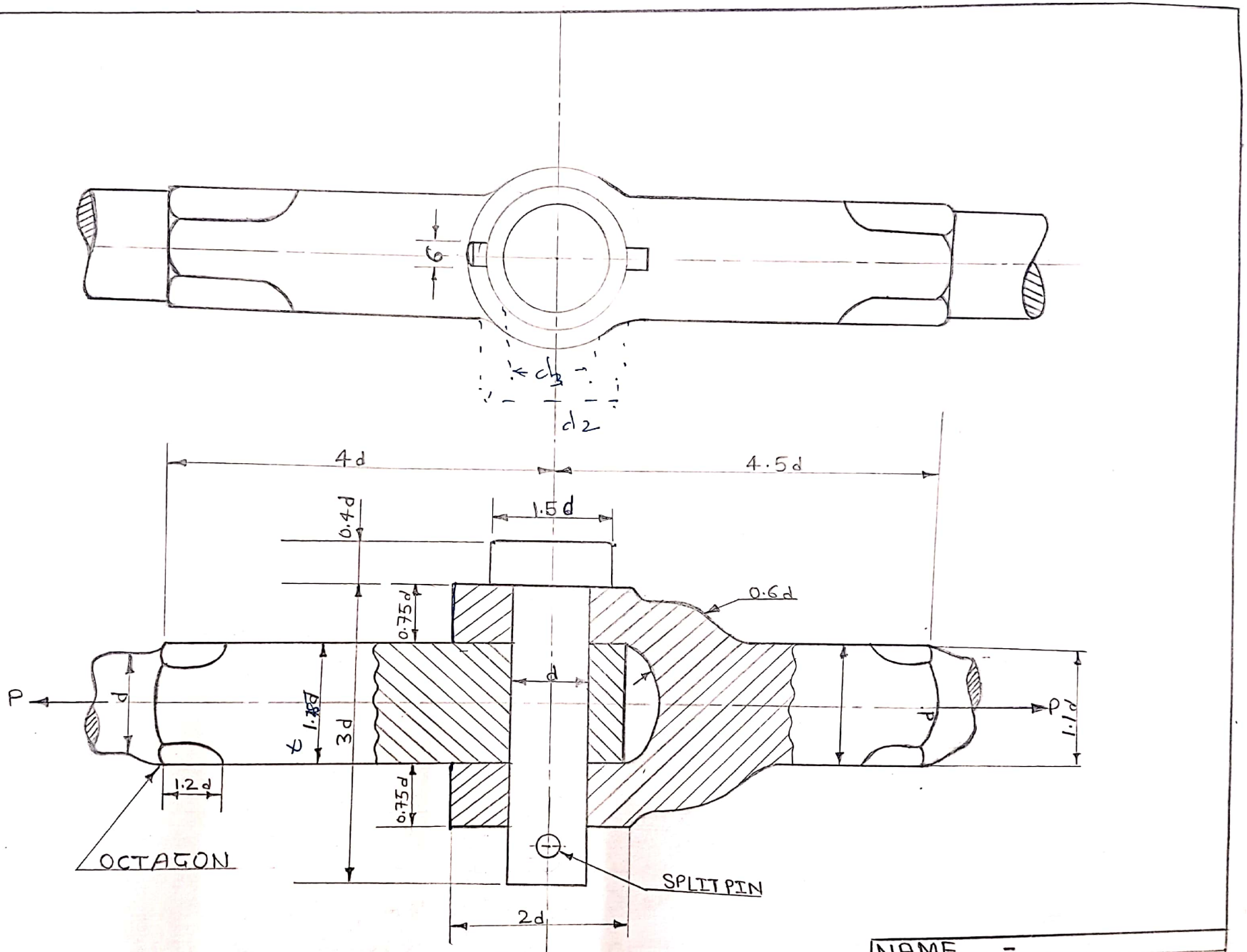

PIN-JOINT OR KNUCKLE JOINT

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BRANCH	-
SEM	-
ROLL NO.	-
DATE	-
TITLE	- KNUCKLE JOIN

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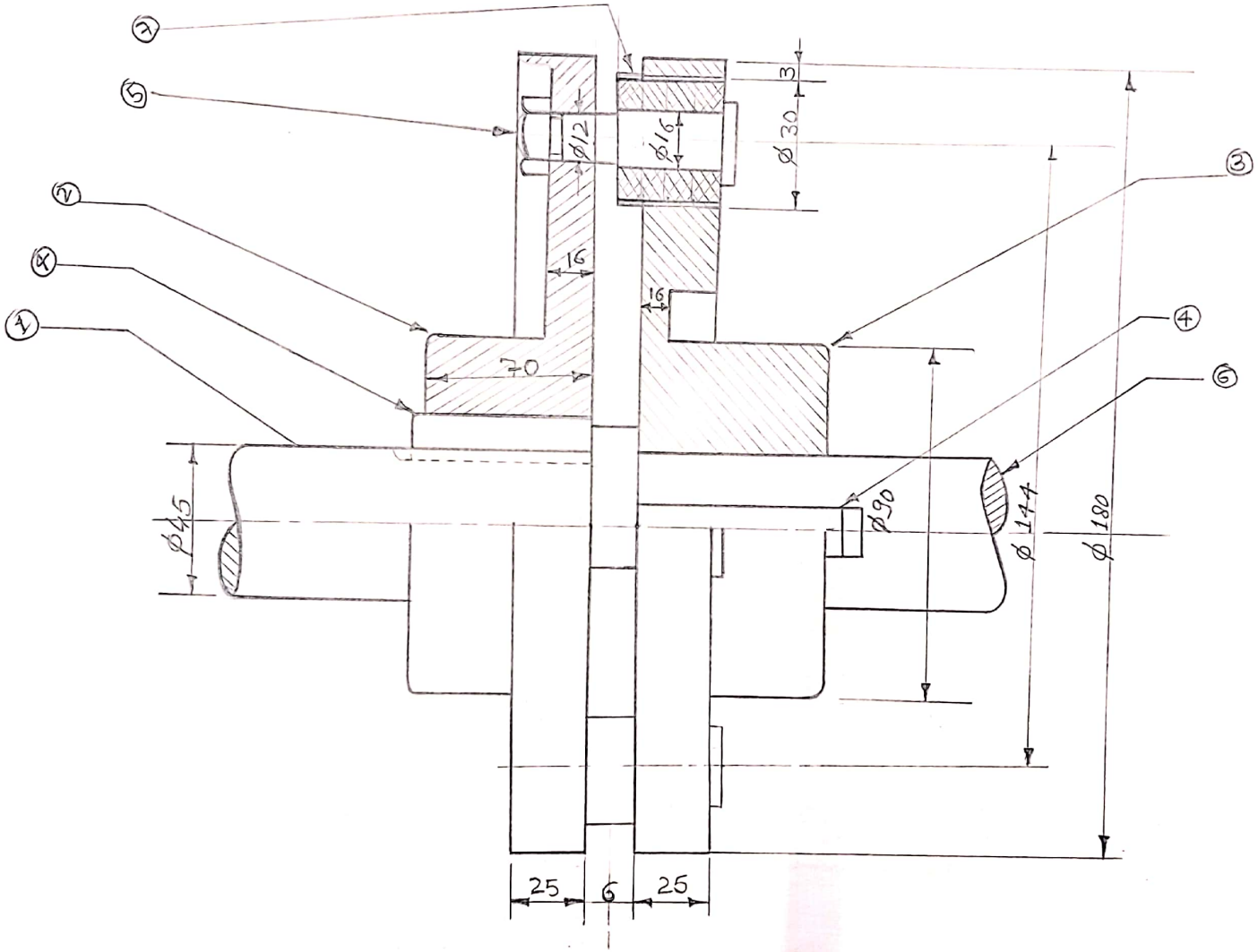

PIN TYPE FLEXIBLE COUPLING

NAME	-
BRANCH	-
SEM	-
ROLL NO.	-
DATE	-
TITLE	- FLEXIBLE COUPLING

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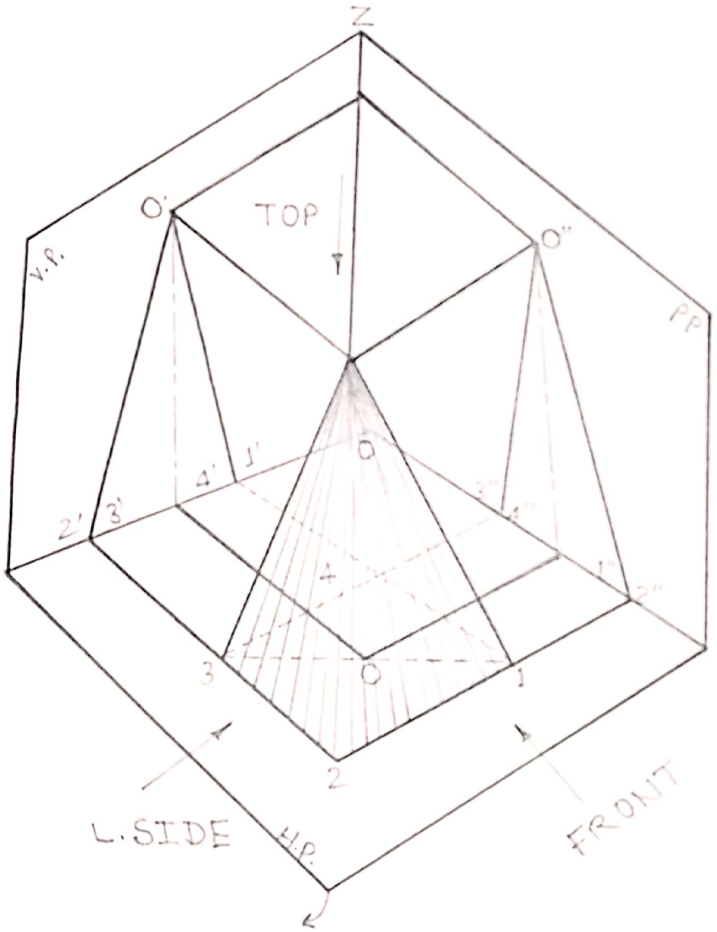
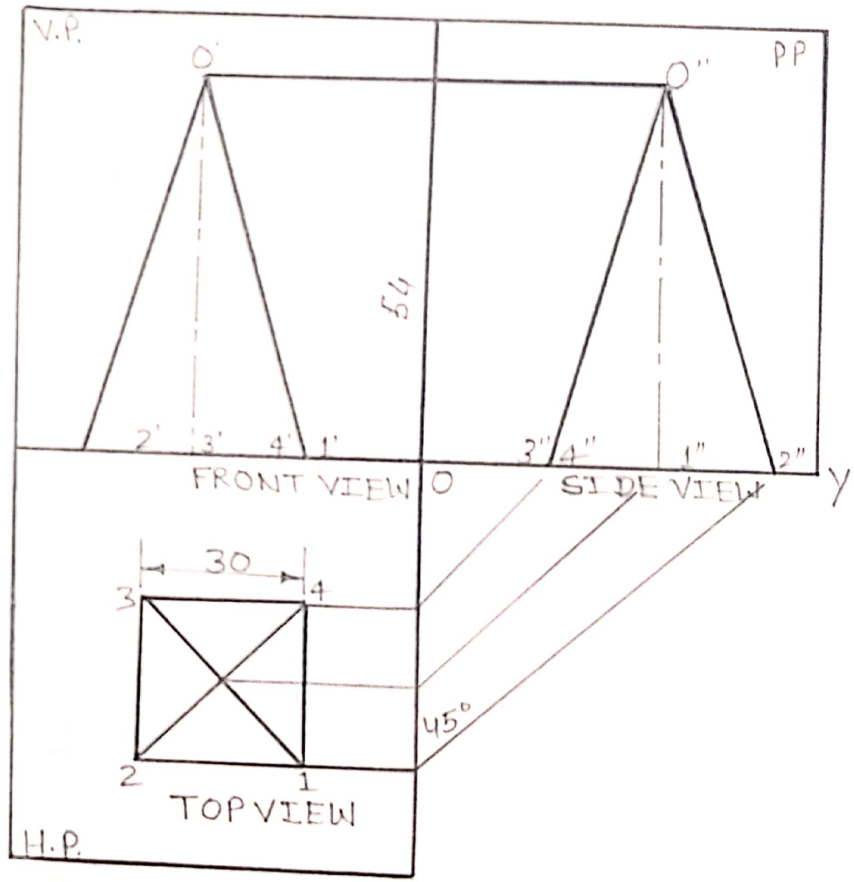
Q.NO.1:- DRAW THE PROJECTIONS OF A SQUARE PYRAMID OF BASE EDGES 30 MM. AND AXIS 54 MM, RESTING ON ITS BASE ON H.P. WITH ONE OF BASE EDGES PARALLEL TO V.P. AND AXIS PERPENDICULAR TO THE H.P.





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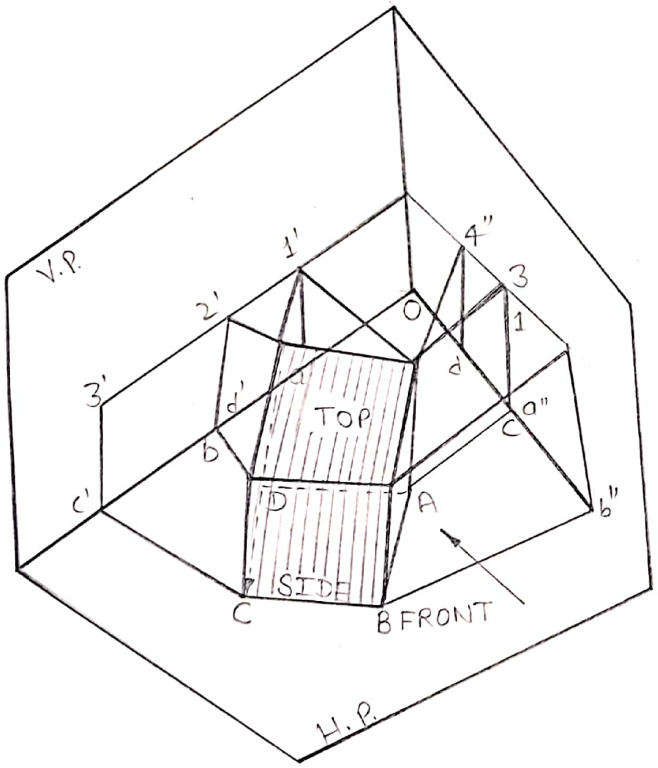
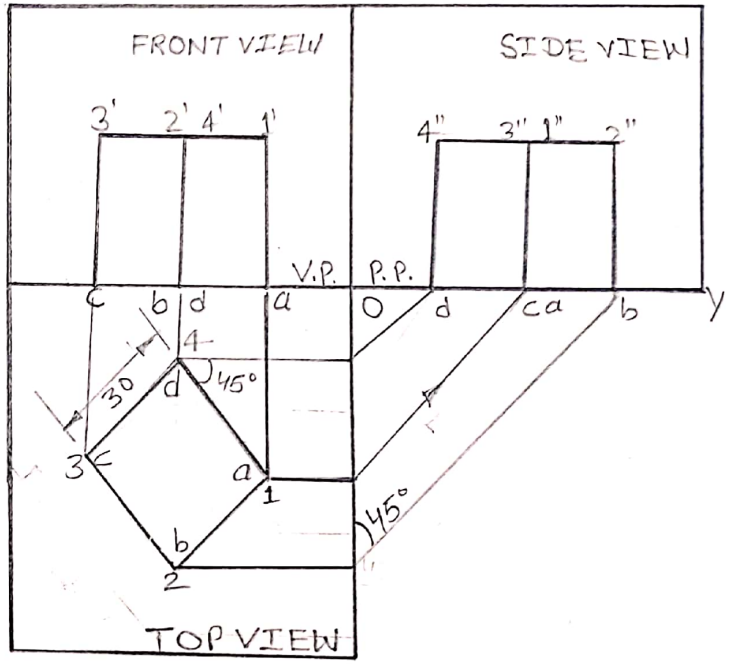
Q.NO.02:- DRAW THE THREE VIEWS OF A CUBE 30 mm SIDE WHEN IT IS RESTING ON ITS BASE ON H.P. WITH ONE OF ITS BASE EDGES MAKING AN ANGLE 45° TO V.P.





COLLEGE NAME: D.V.S.I.E.T. (MEERUT)	DRAWING SHEET	NAME:
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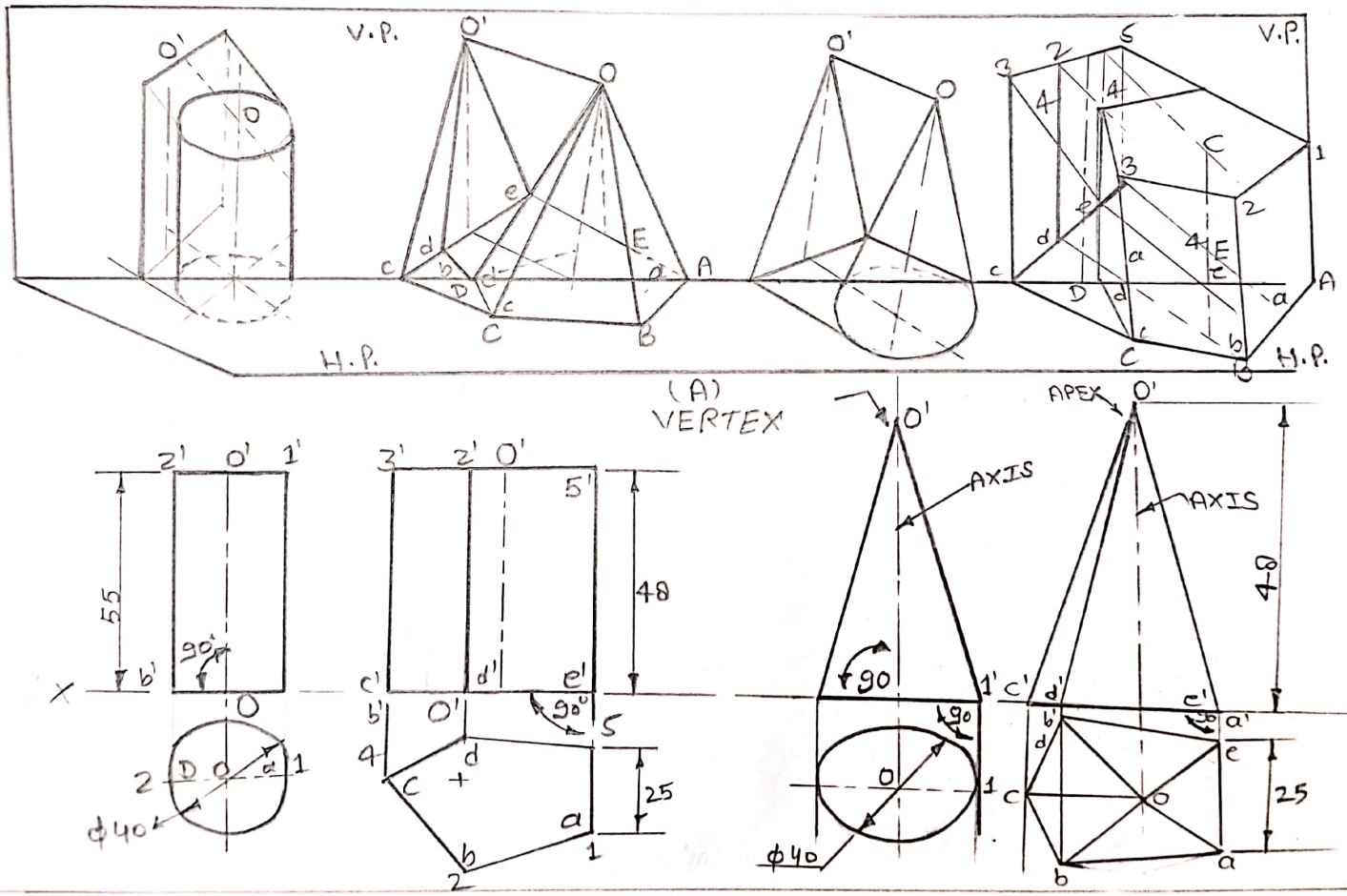
Q.NO.1. DRAW THE TOP VIEW AND FRONT VIEW OF THE FOLLOWING SOLIDS. RESTING ON THEIR BASES AS GIVEN. USING COMMON REFERENCE LINE.

(i) A CYLINDER HAVING ϕ40 mm as BASE AND 55 mm HEIGHT.

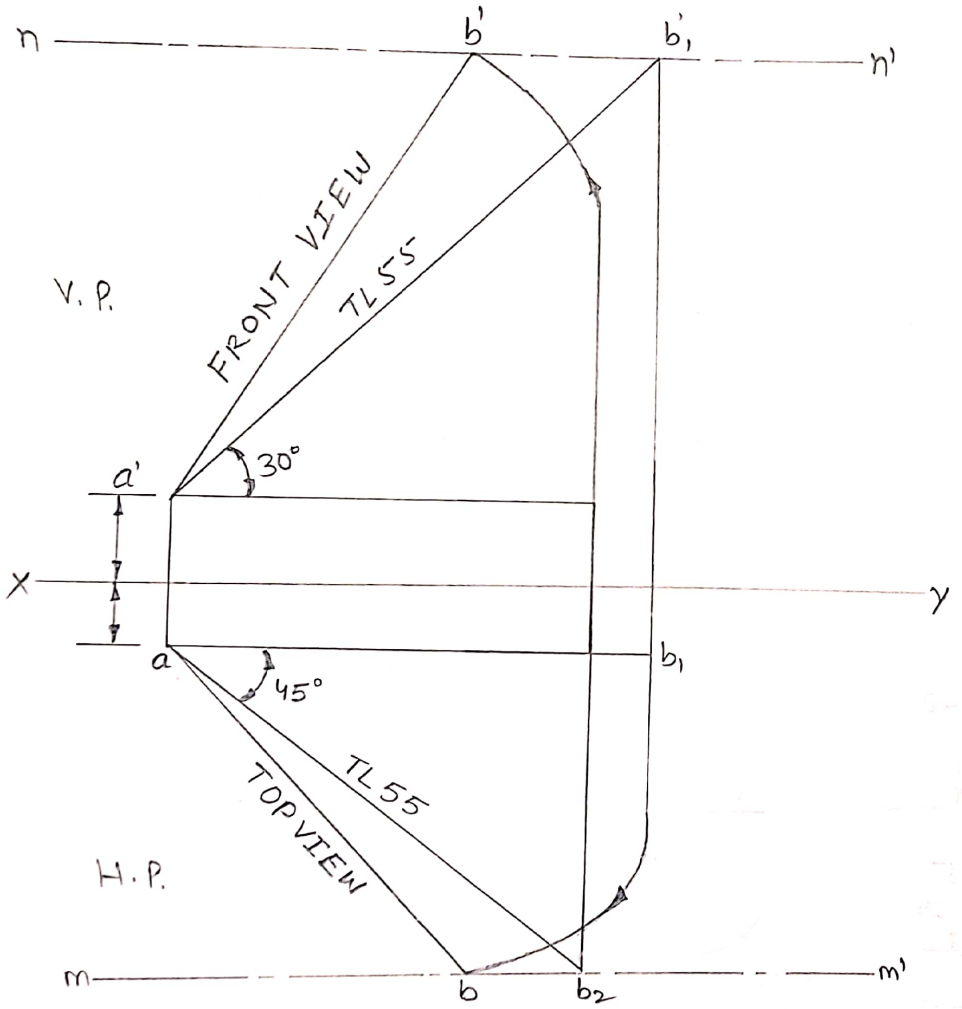
(ii) A PENTAGONAL PRISM, EDGE OF BASE 25 mm and 48 mm. LONG, HAVING ONE OF ITS BASE EDGES PERPENDICULAR TO V.P.

(iii) A CONE, ϕ40mm AS BASE and HEIGHT of AXIS 55 mm.

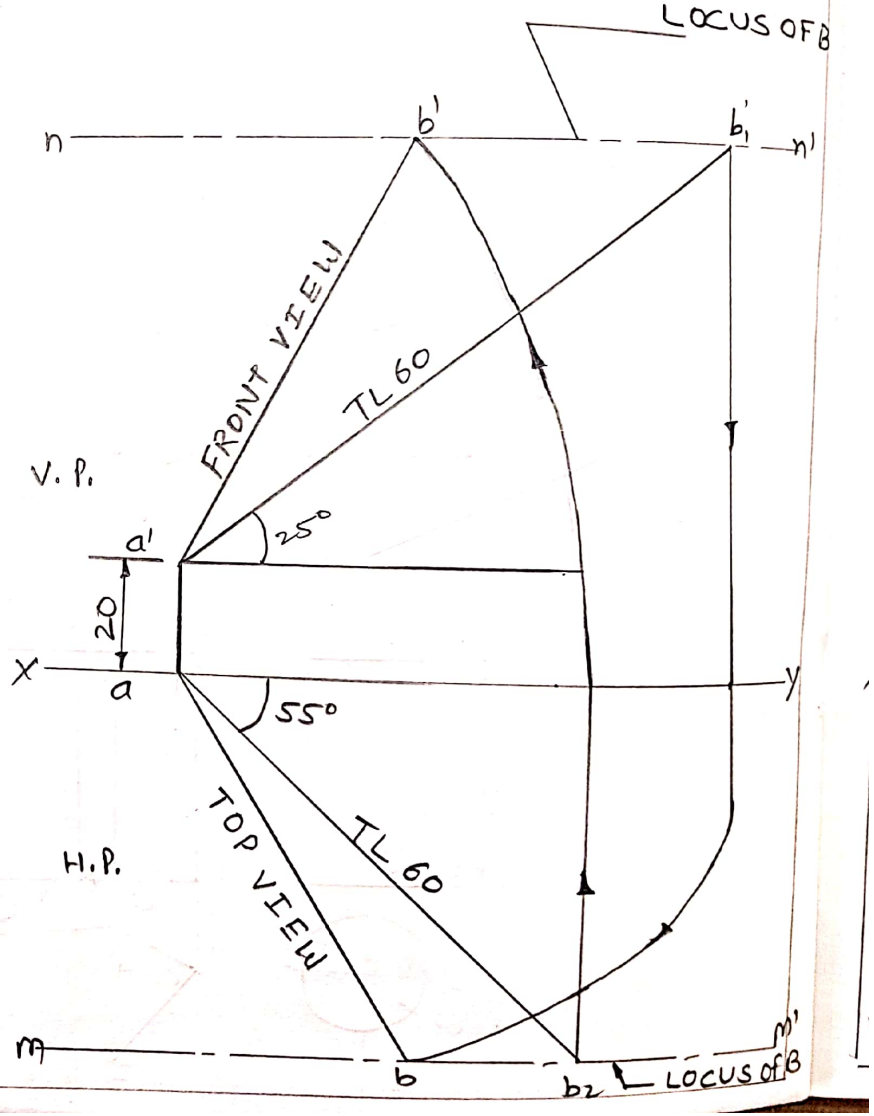
(iv) A PENTAGONAL PYRAMID, 25mm EDGE AND 48 mm HEIGHT WITH AN EDGE OF ITS base AT 90° TO V.P.



Q.1 A STRAIGHT LINE AB, 55 mm LONG MAKES AN ANGLE of 30° TO THE H.P. AND 45° TO THE V.P. THE AND A IS 12 mm INFRONT OF V.P. AND 15 mm ABOVE H.P. DRAW THE PROJECTION OF THE LINE AB.



Q.2. A STRAIGHT LINE AB, 60 mm LONG MAKES AN ANGLE OF 25° TO THE H.P. AND 55° TO THE V.P. THE ONE END OF THE STRAIGHT LINE AB LIES IN THE H.P. AND is 20 mm INFRONT OF V.P. DRAW THE PROJECTIONS OF THE LINE AB.



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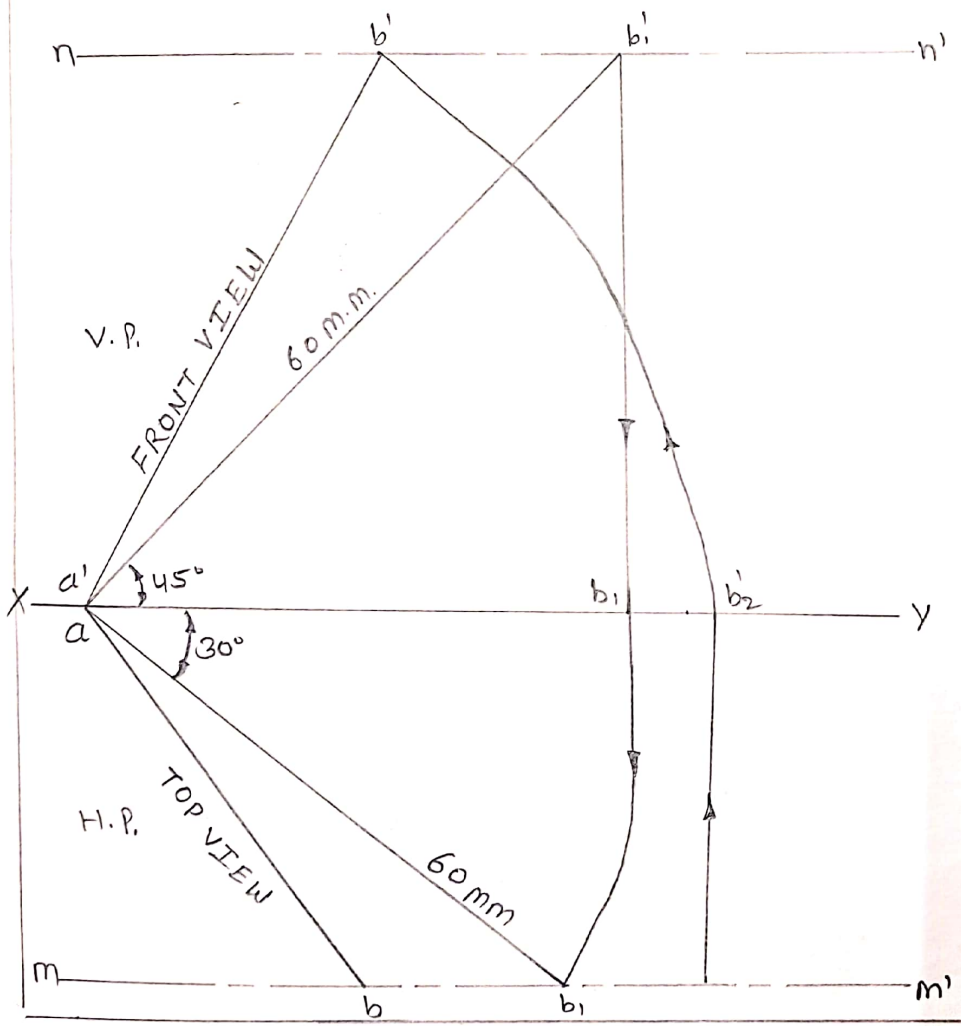
Q.NO.3:- A STRAIGHT LINE AB, 60 MM LONG HAS ITS END A IN BOTH H.P. AND V.P. THE STRAIGHT LINE IS INCLINED AT 45° TO H.P., AND 30° TO V.P. DRAW ITS PROJECTIONS.



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