(3 Hours)                                    [ Total Marks : 75
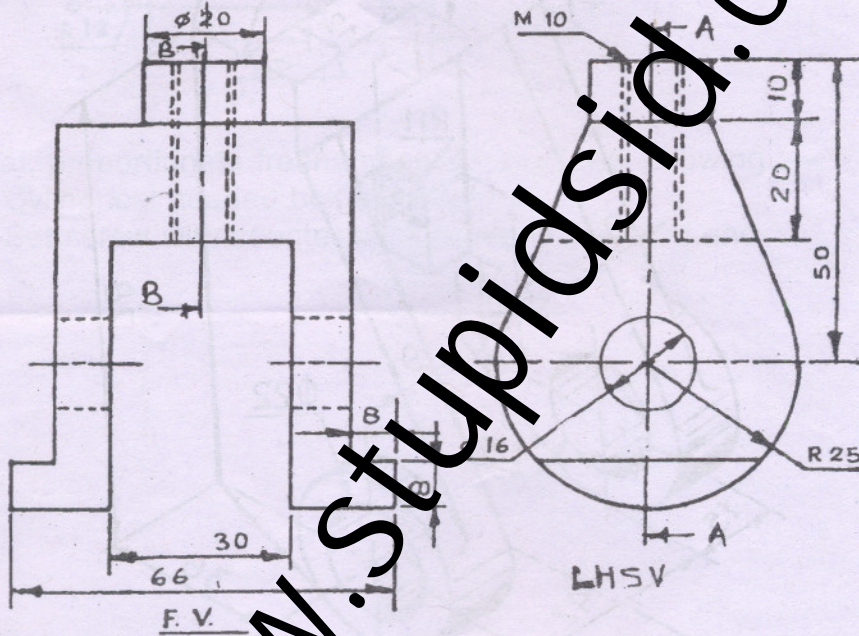
**N.B.** (1) Question No. **1** is **compulsory**.
    (2) Answer any **four** questions out of remaining **six** questions.
    (3) Use only **Drawing Sheets for answering**.
    (4) Use your **judgement** for any unspecified dimension.
    (5) Use **First Angle Method** of projection only.
    (6) Retain all construction lines.

1. **Figure** shows F.V. and S.V.  Draw :—
    (a) Sectional F.V. along AA                                     4
    (b) Sectional L.H.S.V. along BB                              3
    (c) Top View.                                                  6
Insert atleast six dimensions (major).                  2



2. (a) The end P of a line PQ, 120 mm long is in IInd quadrant and 20 mm from both the   8
reference planes.  End Q is in IIIrd quadrant.  The line is inclined at 30° with H.P.
and the distance between the end projectors measured parallel to XY line is 80 mm.
Draw the projections and show H.T. and V.T.

    (b) A pentagonal pyramid side of base 35 mm and height 70 mm rests on its base on   7
H.P. with one side of base perpendicular to V.P.  It is cut by on A.I.P.  Such that the
true shape of section is an isosceles triangle of maximum possible base and minimum
height.  Draw its Front View, Sectional Top View and true shape of the section.

3. (a) A triangular pyramid edge of base 60 mm height 60 mm is resting on its base in   10
H.P. with one of its base edges parallel to V.P.  A square hole of 20 mm. side is
punched into triangular pyramid with its perpendicular to V.P. intersecting the axis
of the pyramid at 15 mm from the base. Two faces of the square hole are parallel
to H.P.  Develop  the lateral surface of the pyramid.

    (b) Draw neat, proportionate free hand sketches of the following :—
        (i) Tapped blind hole                                      2
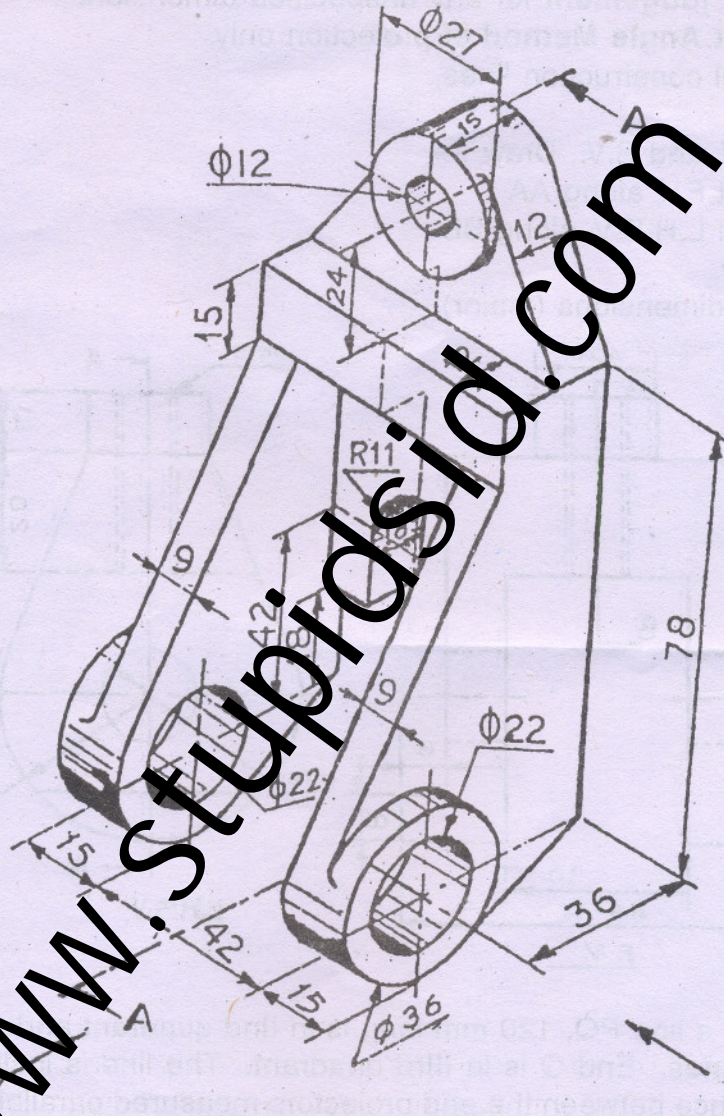        (ii) Capstan Nut (two views).                         3

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4. A pictorial view of a GUIDE-BRACKET is shown in **figure**.
   Draw : —
       (a) Sectional Elevation along plane AA in the direction of arrow X    **4**
       (b) End view in the direction of arrow Y    **5**
       (c) Plan.    **4**
   Insert atleast Ten Major dimensions.    **2**



GUIDE BRACKET

5. A hexagonal pyramid of 30 mm base edges and axis length 70 mm is having one of its    **15**
   base edge in the H.P. and parallel to V.P. Draw its projections if its apex is in the V.P.
   and 55 mm above H.P.

6. (a) Two points A and B are 100 mm apart. The third point 'C' is 75 mm from A and    **10**
       60 mm from B. Draw an ellipse passing through A, B and C and find the length of
       major axis.
   (b) Draw neat, proportionate free hand sketches of the following :—
       (i) Castle Nut (two views)    **3**
       (ii) ACME thread profile.    **2**

7.   (a)   Draw an isometric view of the following object using natural scale.     10
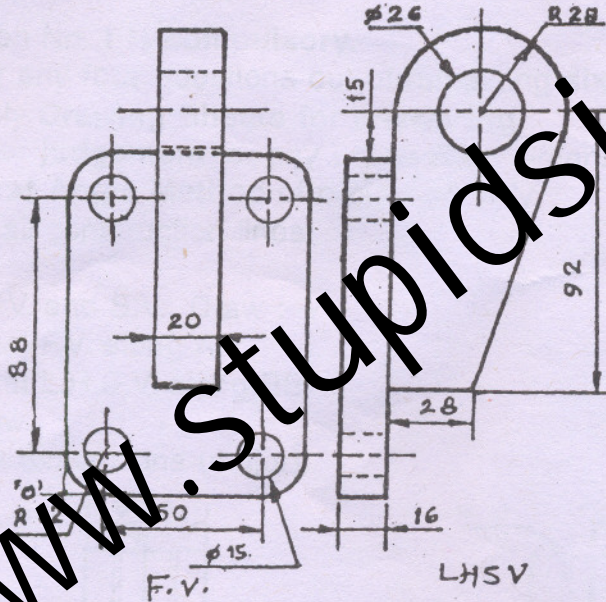


     (b)   Draw neat, proportionate freehand sketches of the following :—
        (i)   Cylindrical headed bolt (two views).                    3
        (ii)   Set screw with counter sunk head and conical end.       2