

GEOMETRICAL AND MECHANICAL DRAWING (869)

This subject may not be taken with Geometrical and Building Drawing

Candidates will be required to reach a minimum standard in the subject as a whole. The use of drawing board, tee-square and set-square will be required. (Candidates may, if they wish, use a drawing board fitted with a parallel motion straight

edge. The use of drafting machines will be permitted). A2 size paper will be used. The recommendation of IS:696-1972 Indian Standard, Code of Practice for General Engineering Drawing should be followed.

CLASS XI

There will be two papers in the subject:

Paper I - Theory: 3 hours..... 80 Marks

Paper II - Project Work 20 Marks

PAPER I (THEORY): 80 MARKS

SECTION A

Plane Geometry

Construction and use of scales including diagonal scales. Enlargement and reduction of irregular plane figures. Construction of triangles, quadrilaterals and polygons. Similar plane figures. Problems on circles, tangents and normals. Loci such as the paths of points in simple link mechanisms. Methods of construction of ellipse, including its elementary properties, parabola and rectangular hyperbola; cycloidal and involute curves.

SECTION B

Solid Geometry

Orthographic projection. (Diagrams printed in the question papers may be in either First or Third Angle projections; the projection used will be stated. Solutions in either First or Third Angle projections will be accepted). Projection involving use of auxiliary planes; simple problems on auxiliary projection. Simple problems on the intersection of prisms, pyramids, cylinders, right circular cones, and spheres. Determination of true length of a line in space: sections and surface development of prisms, pyramids, cylinders and right circular cones. Helix treated as a locus with applications on the projection of helices. Isometric and oblique projection without the use of isometric scale.

PAPER II (PROJECT WORK): 20 Marks

In addition to the syllabus prescribed above, candidates are also required to be assessed in Project Work. The Project work will be assessed by the subject teacher.

All candidates will be required to attempt either Drawing A or Drawing B from each of the three project sheets given. **Each** drawing will carry **5 Marks**.

Mark allocation for each Drawing (5 marks):

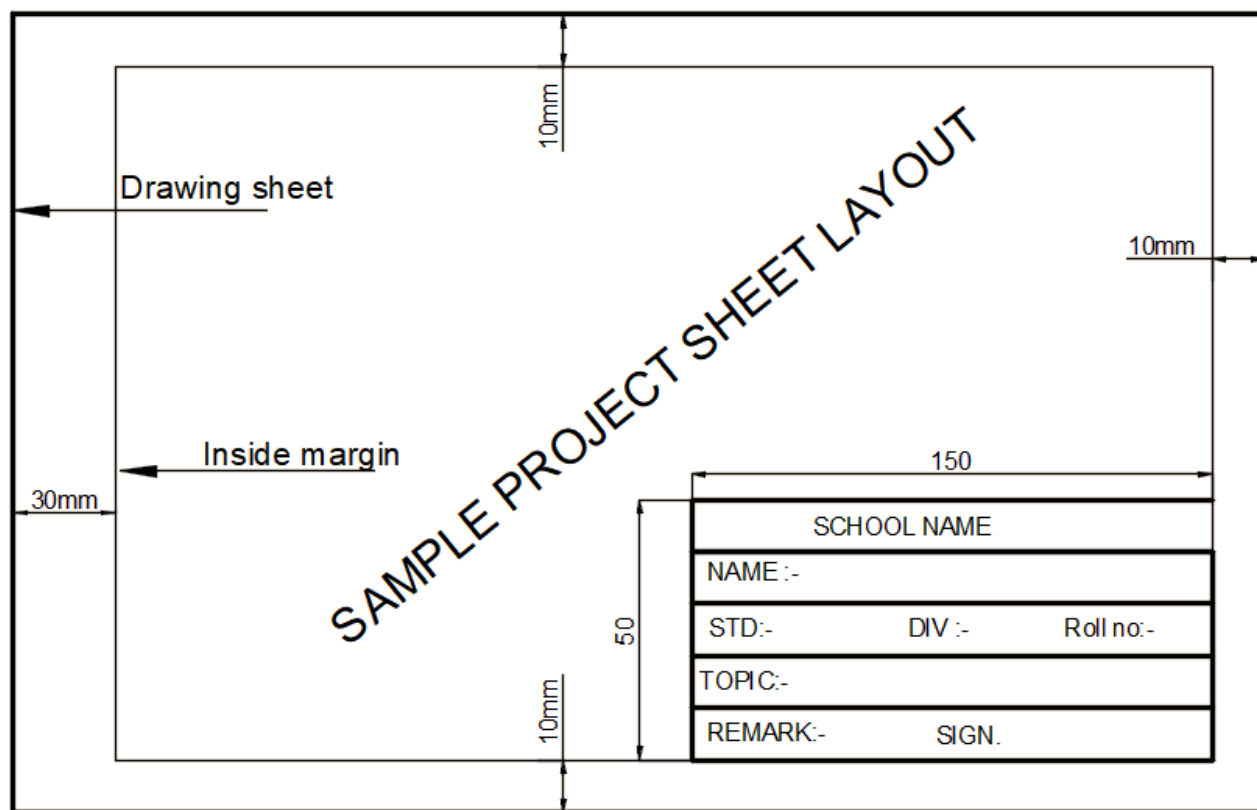
Criteria		Marks
1.	Project size / completeness	1
2.	Line Quality	1
3.	Neatness	1
4.	Accuracy	1
5.	Title Block	1
TOTAL		5

Marks out of 20 will be distributed as given below:

1.	3 Drawings × 5 Marks	15 Marks
2.	Viva-Voce by the subject teacher	5 Marks
TOTAL		20 Marks

Instructions for Project Work:

- Candidates must use A2 size (**Half Imperial**) drawing sheets to complete all projects. A sample project sheet layout with specifications, is given below:



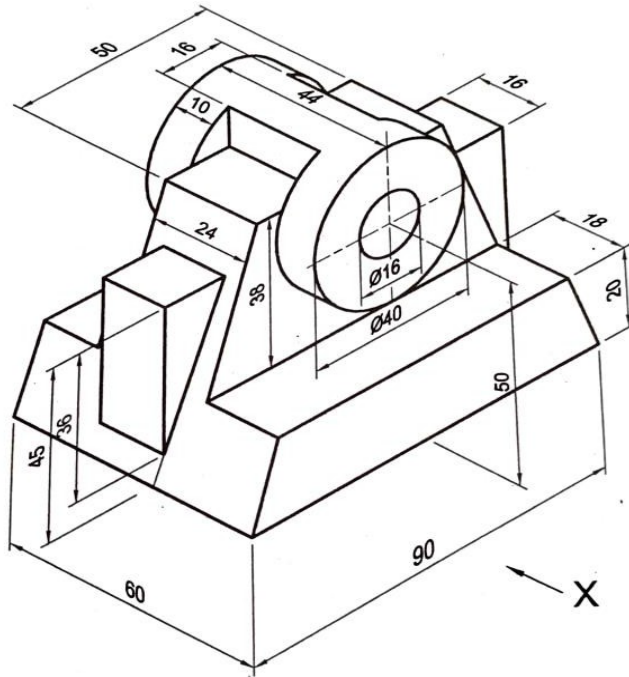
- Candidates must use the given layout and specifications to complete each project sheet.
- Accuracy, neat and clean work is expected from candidates.
- Candidates need **not** draw / paste the questions.

PROJECT SHEETS

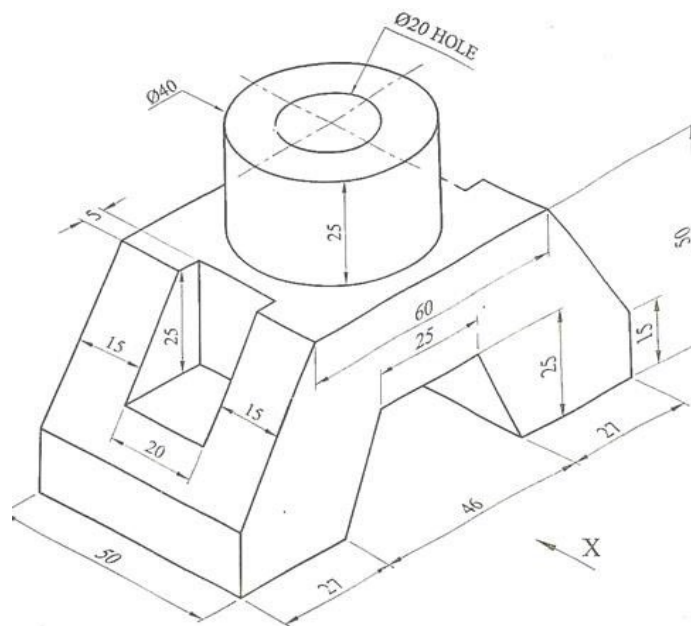
Candidates will be required to attempt either Drawing A or Drawing B from each of the three project sheets given below.

Project Sheet 1

Draw by using 1st OR 3rd angle method of projection i) F.V, ii) T.V. & iii) L.H.S.V



OR



SAMPLE TABLE FOR PROJECT WORK

S. No.	Unique Identification Number (Unique ID) of the candidate	<u>PROJECT SHEETS</u> (Total 3 sheets of 5 marks each)				TOTAL MARKS
		A	B	C	D	
		Teacher	Visiting Examiner	Average Marks (A + B ÷ 2)	Viva-Voce by Visiting Examiner on all three project sheets	(C + D)
		15 Marks	15 Marks	15 Marks	5 Marks	20 Marks
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

*For breakup of the 5 Marks (for each project sheet) to be awarded separately by the Teacher and the Visiting Examiner, please refer to the table giving the criteria for mark allocation for *each* project.

NOTE: VIVA-VOCE of 5 Marks on the Project Sheets is to be conducted only by the Visiting Examiner and should be based on the Project Sheets only.