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First Semester BE Degree Examination May-June-2022
Engineering Visualization-21EVL15

TIME: 03 Hours

Max. Marks: 100

- Note: 01. Answer all FOUR full questions
02. Grid sheets may be provided for making preparatory sketches

Module -1			Marks
Q.01	(a)	A point 20 mm below the reference XY line is the top view of three P, Q & R points. P is 20 mm below HP, Q is 35 mm above HP and R is on HP. Draw the projections of the three points and state their positions and quadrants in which they are situated.	08
	(b)	The top view PQ of a straight line is 70 mm and makes an angle of 60° with XY line. The end Q is 10 mm in front of VP and 30 mm above HP. The difference between the distances of P & Q above the HP is 45 mm. Draw the projections and determine its true length and true inclinations with HP & VP.	12
OR			
	(a)	An equilateral triangular lamina of 25 mm side lies on one of its sides on HP. The lamina makes 45° with HP and one of its medians is inclined at 40° to VP. Draw its projections.	20
Module-2			
Q.02		A square pyramid 35 mm sides of base and 60 mm axis length rests on HP on one of its edges of the base. Draw the projections of the pyramid when the axis is inclined to HP at 45° and VP at 30°.	30
OR			
Q.02		A pentagonal prism 25 mm sides of base and 50 mm axis length rests on HP on one of its corners of the base such that the two base edges containing the corner on which it rests make equal inclinations with HP. Draw the projections of the prism when the axis of the prism is inclined to HP at 40° and appears to be inclined to VP at 45°.	30
Module-3			
Q.03		A square prism base side-40mm, height 50mm is placed centrally on a rectangular slab of sides 100mmx60mm and thickness-20mm. Draw the isometric projection of the combination.	25
OR			
Q.03		A sphere of diameter 50 mm rests centrally on top of a cube of sides 50 mm. Draw the isometric projections of the combination of solids.	25
Module-4			
Q.04		A square prism of base 40 mm and axis length 65 mm is resting on HP on its base with all the vertical faces being equally inclined to VP. It is cut by an inclined plane 60° to HP and perpendicular to VP and is passing through a point on the axis at a distance 15 mm from top face. Draw the development of the lower portion of the prism.	25



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Name of Faculty: Dr. Shankar Badiger

Semester End Exam
Semester : I

Q.No.	Solution and Scheme	Marks
Q.1) a)	<p>P - 20mm below HP & 20mm in front of VP, IV quadrant. Q - 35mm below HP & 20mm in front of VP, I quadrant R - on HP & 20mm in front of VP, I & IV quadrant.</p> <p>(All dimensions are in mm)</p>	(8)

Q.No.	Solution and Scheme	Marks
Q1. b)	<p> $\theta = 32^\circ$ $\phi = 60^\circ$ $\phi = 47^\circ$ 70 mm 45 30 10 $Q'P_2 = 83.5 \text{ mm}$ </p> <p>(All dimensions are in mm)</p>	(12)



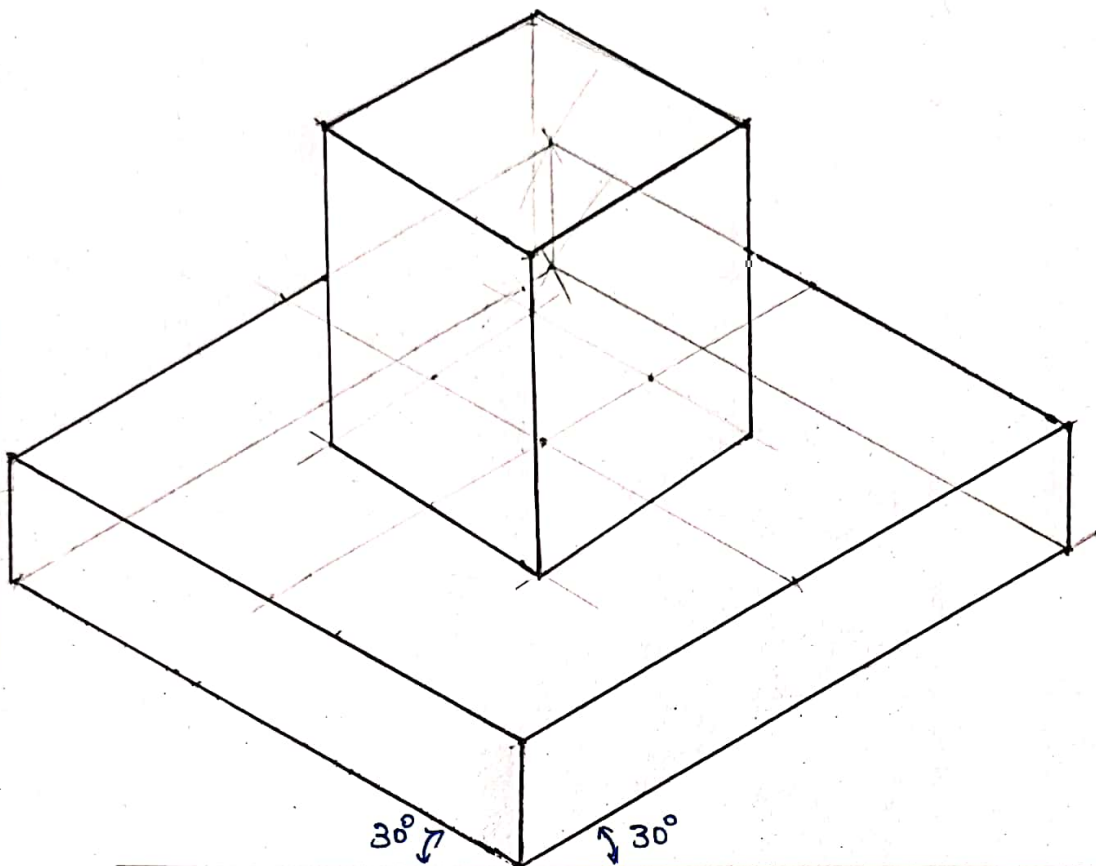
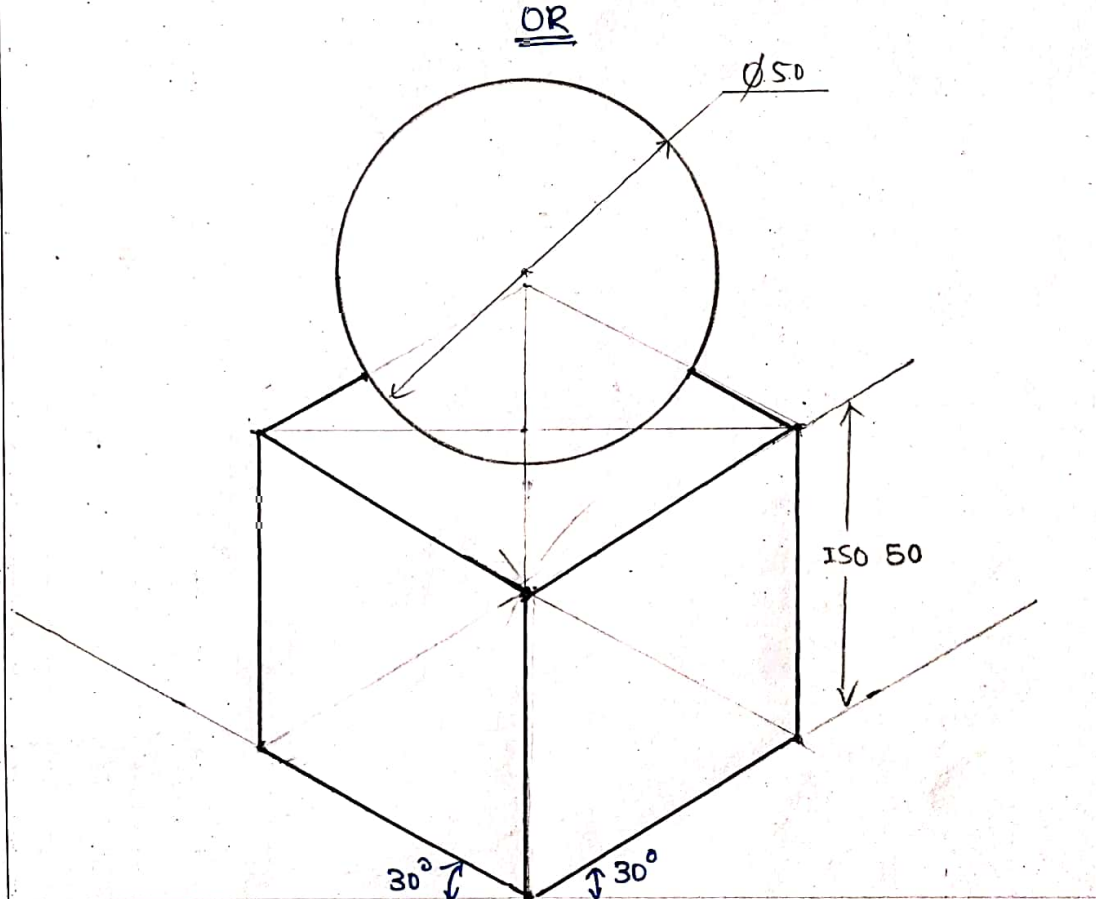
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Q.No.	Solution and Scheme	Marks
Q1) a)	<p style="text-align: center;"><u>OR</u></p> <p style="text-align: right;">(20)</p> <p style="text-align: right;">(mm)</p>	

Q.No.	Solution and Scheme	Marks
Q.2)	<p>The drawing illustrates the projections of a square pyramid. It consists of three main views: <ul style="list-style-type: none"> Front View (Top): A triangle with apex o' and base line $bc'd'$. The height is indicated as 35. A vertical line $o'o$ represents the axis. Top View (Middle): A square with vertices a, b, c, d and center o. The side length is indicated as 35. A horizontal line $o'o_1$ represents the axis. Auxiliary View (Bottom): Shows the true shape of the pyramid's face. It is a triangle with apex o_1' and base line $a_1(b_1)c_1d_1$. The true slant height is shown as $o_1'a_1$. Construction lines include arcs and projectors to transfer dimensions between views. Labels $o_1, o_1', a_1(b_1), b_1(c_1), c_1, d_1, a, b, c, d, o, o'$ are used to identify points in different views. </p>	(30)

Q.No.	Solution and Scheme	Marks
	<p style="text-align: center;">(30)</p> <p style="text-align: center;">45°</p> <p style="text-align: center;">90°</p> <p style="text-align: center;">25°</p>	<p>(30)</p>

Q.No.	Solution and Scheme	Marks
Q.3)	 <p style="text-align: center;">OR</p>	(25)
Q.3)	 <p style="text-align: right;">(mm)</p>	(25)

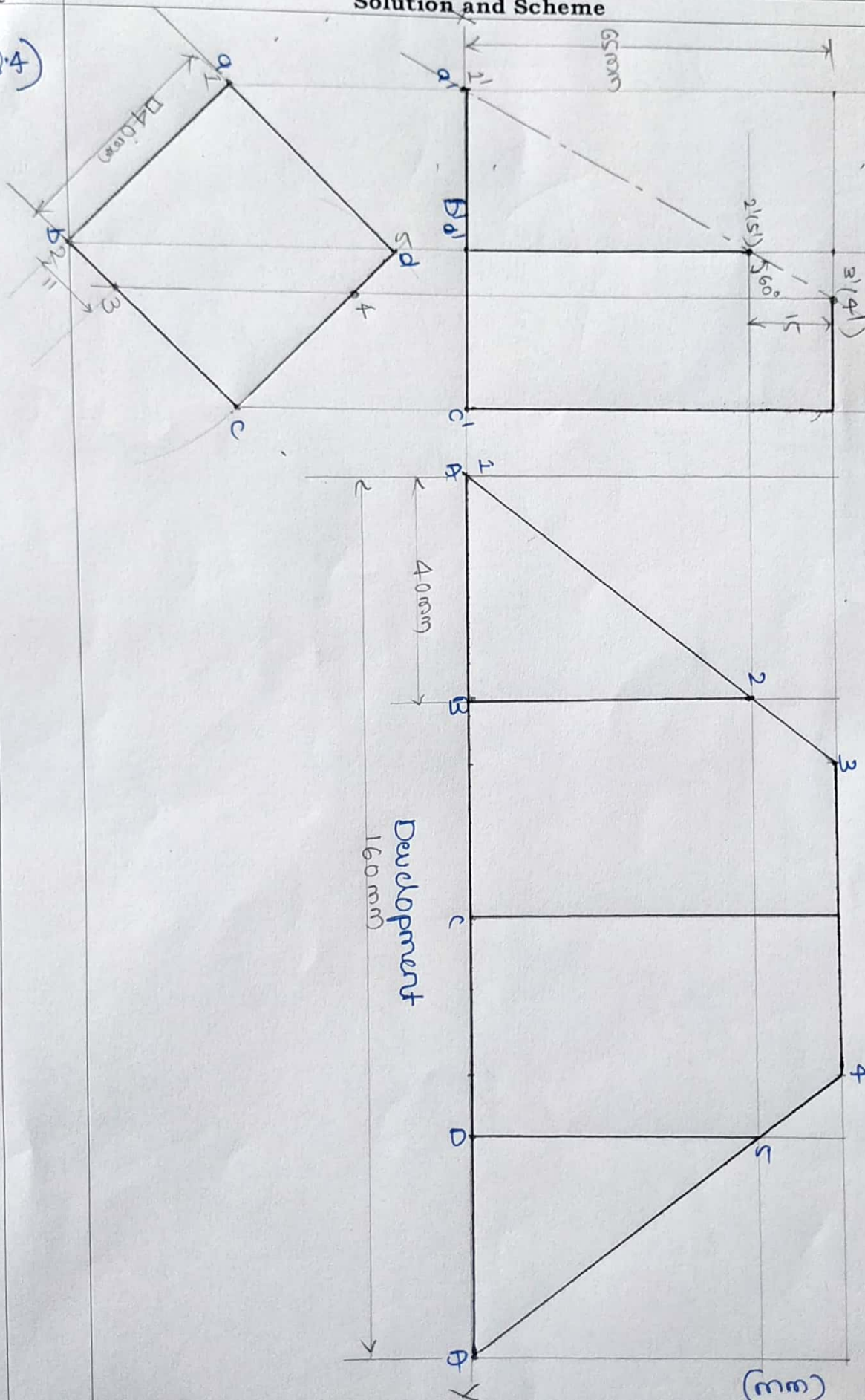
Q.No.

Solution and Scheme

Marks

Q4

25



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