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B.Tech. Degree II Semester Regular/Supplementary Examination in Marine Engineering June 2022

19-208-0203 ENGINEERING GRAPHICS (2019 Scheme)

Time: 3 Hours

Maximum Marks: 60

Course Outcome

On successful completion of the course, the students will be able to:

CO1: Prepare drawings as per Indian standards.

CO2: Produce orthographic projection of straight lines and planes.

CO3: Draw orthographic projection of solids.

CO4: Understand development of surface of different geometric shapes.

CO5: Construct isometric scale, isometric projections and views.

Bloom's Taxonomy Levels (BL): L1 – Remember, L2 – Understand, L3 – Apply, L4 – Analyze,

L5 – Evaluate, L6 – Create

PO – Programme Outcome

		(5 × 15 = 75)	Marks	BL	CO	PO
I.	(a)	A gear of a clock of 1 cm diameter has to be represented by a similar shape of diameter 3 cm on the drawing. Find the length of a lever of the clock on the drawing, if its actual length is 3.8 cm. Draw a backward vernier and forward vernier scales to measure upto 0.01 cm and long enough to measure upto 5 cm. Also mark 3.86 cms on this scale.	10	L2	1	1.3.1
	(b)	Construct a diagonal scale of R.F. 1/2000 to show metres, decimeters and centimeters and long enough to measure 300 m. Mark a distance of 257.75 metres.	5	L2	1	1.3.1
OR						
II.	(a)	Construct a cycloid, given the radius of the rolling circle as 30 mm. Also, draw a tangent and a normal at any point P on the curve.	10	L2	1	1.3.1
	(b)	Draw an ellipse by using four centre method with major axis 120 mm and minor axis 80 mm.	5	L2	1	1.3.1
III.	(a)	The end P of a line PQ is 25 mm below HP and 40 mm behind VP while the other end Q is 50 mm above HP and 20 mm in front of VP. If the distance between the end projectors is 50 mm, draw the projections of the line PQ. Determine the true length of the line, the inclinations of the line to HP and VP and also, find its traces.	10	L3	2	1.3.1
	(b)	A rectangular plate ABCD 60 mm × 40 mm has one of its shorter edges in the VP and inclined at 40° to the HP. Draw its top view if its front view is a square of side 40 mm.	5	L3	2	1.3.1
OR						
IV.	(a)	A straight line 65 mm long has one end 15 mm in front of VP and 40 mm above HP while the other end is 30 mm in front of VP and 20 mm above HP. Draw the projections of the line and find the true inclinations of the line with HP and VP and also mark the traces.	10	L3	2	1.3.1
	(b)	A circle of 60 mm diameter appears as an ellipse in the plan, having its major axis 60 mm long and minor axis 40 mm long. Draw its projections when the major axis is horizontal.	5	L3	2	1.3.1

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		Marks	BL	CO	PO
V.	A square pyramid, side of base 45 mm and altitude 65 mm is kept with a side of base parallel to VP and the triangular face containing that side of base being vertical. Draw the projections of the pyramid such that the base is visible in the front view.	15	L3	3	1.3.1
OR					
VI.	A cone of base diameter 60 mm standing upright is cut by a section plane such that the true shape is a parabola whose double ordinate is 50 mm and abscissa is 70 mm. Draw the front view, top view and true shape of the section.	15	L3	3	1.3.1
VII.	A frustum of a square pyramid has its base 50 mm side, top 25 mm side and height 75 mm. Draw the development of the lateral surface of the solid.	15	L3	4	1.3.1
OR					
VIII.	A vertical cylinder of diameter 150 mm and 225 mm long is completely penetrated by a horizontal cylinder of diameter 126 mm and 210 mm long. The axis of the horizontal cylinder is parallel to VP and is 10 mm in front of the axis of the vertical cylinder. Draw the projections of solids showing lines of intersection.	15	L3	4	1.3.1
IX.	A waste paper basket is in the form of a frustum of hexagonal pyramid with base 80 mm hexagon and top 120 mm. Draw the isometric projection if its height is 200 mm.	15	L3	5	1.3.1
OR					
X.	A cube of side 40 mm is resting on the ground such that one of its faces is parallel to and the mid of the solid is on the picture plane. The central plane is located 20 mm to the left of the nearest corner of the cube. The station point is 60 mm in front of the picture plane and 70 mm above the ground plane. Draw its perspective view.	15	L3	5	1.3.1

Bloom's Taxonomy Levels

L2 – 20%; L3 – 80%
