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B.Tech. Degree II Semester Regular/Supplementary Examination in Marine Engineering June 2023

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 orthographics projection of straight lines and planes.
 CO3: Draw orthographics 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
 PI – Programme Indicators

(Answer *ALL* questions)

(5 × 15 = 75)

		Marks	BL	CO	PI
I.	(a) Construct a diagonal scale of 1:5000 to show single metre and long enough to measure 300 metres. Mark on the scale a distance of 275.5 m.	10	L2	1	1.3.1
	(b) Construct a scale of R.F. = 1/2.5 to show decimeters and centimeters and by a vernier to read millimeters to measure up to 4 decimeters. Mark a distance of 2.26 dm and 0.57 dm on it.	5	L2	1	1.3.1
OR					
II.	(a) A stone is thrown from a building, 6 m high and at its highest point of flight, it just crosses a palm tree 12 m high. Trace the path of the projectile if the distance between the building and the tree is 3 metres. Take scale 1 cm = 1 metre.	10	L2	1	1.3.1
	(b) Draw an involute of a circle of diameter 50 mm. Also draw a tangent and normal at a point M on the curve.	5	L2	1	1.3.1
OR					
III.	(a) The line AB has its ends 15 mm and 50 mm above HP. The length of its elevation is 60 mm. The line is inclined 25° to HP. The HT of the line is 10mm in front of VP. Draw the projections of the line and find its true length and true inclination with VP. Also mark the VT.	10	L3	2	1.3.1
	(b) Draw the projections of a regular hexagon of 35 mm side having one of its sides in the HP, and inclined at 60° to the VP and its surface making an angle of 45° with the HP.	5	L3	2	1.3.1
OR					
IV.	(a) The top and front views of a line are inclined at 35° and 45° respectively to the xy-line. One end of the line is on HP and VP while the other end is 40 mm below HP. Draw the projections of the line and find the true length and inclinations of the line with HP and VP. Also mark the traces.	10	L3	2	1.3.1
	(b) A pentagonal lamina, edge 30 mm is resting on a corner with an edge parallel to HP is in VP. The plane of the lamina is inclined at 30° to HP. Draw the projections.	5	L3	2	1.3.1

(P.T.O.)

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		Marks	BL	CO	PI
V.	A square pyramid 40 mm side of base is hanging freely from one of the corners of its base with the axis parallel to VP. If the height of the pyramid is 75 mm, draw its projections.	15	L3	3	1.3.1
OR					
VI.	A pentagonal pyramid 30 mm side, axis 80 mm high is resting on its base on HP. One of the corners of its base is in VP and a side containing the corner, is inclined at 30° to VP. It is cut by a section plane parallel to VP and 10 mm in front of the axis of the pyramid. Draw its sectional front view and top view.	15	L3	3	1.3.1
VII.	Draw the development of a frustum of a cone of base diameter 80 mm top diameter 30 mm and height 90 mm.	15	L3	4	1.3.1
OR					
VIII.	A square prism 50 mm side and height 100 mm stands vertically with its base on HP with two rectangular faces equally inclined to VP. It has a horizontal square hole of 30 mm side with its axis parallel to both HP and VP. The flat faces of this hole are equally inclined to HP and VP. A square prism of size 30 mm and 100 mm long penetrates through this hole. Show the projections showing the lines of intersection. Assume that the axes of the prisms bisect each other.	15	L3	4	1.3.1
IX.	A hemisphere of diameter 48 mm. is resting on the ground with its flat surface facing upwards. A square pyramid, having side of base 24 mm. and axis 30 mm., is resting on its base centrally on the top of the hemisphere. Draw the isometric projection of the solids.	15	L3	5	1.3.1
OR					
X.	Draw the perspective view of rectangular prism of 100 × 50 × 40 mm lying on its 100 × 50 mm rectangular base on the ground plane (GP), with a vertical edge touching the picture plane (PP) and the end faces inclined at 45° with the PP. The station point (SP) is 120 mm in front of PP 80 mm above the ground plane and lies in a central plane which is passing through the centre of the prism.	15	L3	5	1.3.1

Bloom's Taxonomy Levels

L2 - 20%, L3 - 80%
