



BT MRE.I&II.05.14. 0431

***B.Tech. Degree I & II Semester Examination in
Marine Engineering May 2014***

MRE 1106 ENGINEERING GRAPHICS

Time : 3 Hours

Maximum Marks : 100

(5 x 20 = 100)

- I. (a) An area of 144 sq. cm on a map represents area of 36 sq km on the field. Find the R F of the scale for this map and draw a diagonal scale to show km, hectometers and decameters and to measure up to 10km. Indicate on the scale a distance of 7km, 5 hectometers and 6 decameters (1 hectometers = 100 meters). (10)
- (b) Construct a forward reading Vernier scale of RF 1:3500 and long enough to measure 420 meters and to show meter. Show on it a distance of 257 meters. (10)

OR

- II. (a) Trace the path of a planet around a star when the minimum distance between the star and the planet is 20 units and the maximum distance is 80 units. Note that the star will always be at one of the foci. (10)
- (b) In a logarithmic spiral for one convolution the two succeeding radius vectors 30 degree apart were 48 mm and 60 mm respectively. Assuming the curve to start from the pole, construct the curve. (10)

- III. (a) The end A of a line AB of length 70 mm is 20 mm above HP and 40 mm in front of VP. The other end B is 15 mm in front of VP. Draw the projections and find the inclinations with the HP and the VP. (10)
- (b) A straight line 100 mm long has the end A in the first quadrant and the end B in the second quadrant. The line is inclined at 45 degree to VP and 30 degree to HP. The end A is 30 mm above HP and 40 mm in front of the VP. Draw the projections and mark the traces. (10)

OR

- IV. (a) Find the length of a solid diagonal of a cube of side 30 mm graphically. (10)
- (b) A circle of 40 mm diameter inclined 30 degree to HP and perpendicular to VP has its centre 30 mm in front of VP and on HP. Draw its front and top views. (10)

- V. A regular pentagonal prism of side 20 mm and height 60 mm is resting on the VP and it is inclined at 45 degree to the ground. Draw the projections if the axis of the prism is 35 mm from the VP. (20)

OR

- VI. A hexagonal pyramid of base edge 20 mm long and the height 50 mm is placed with its axis parallel to both HP and VP one of the base edge is perpendicular to the VP. A vertical cutting plane parallel to the VP cuts the solid at a distance of 10 mm from the axis. Draw the sectional view of the solid. (20)

- VII. An ant starts moving on from one point of a cone base of the base circle of diameter 50 mm of a cone of end generator 75 mm long and moves around the cone and reaches back to the starting point. Trace the path traversed by the ant if it travels the shortest route possible. (20)

OR

(P.T.O.)

- VIII. A vertical square prism of base edges 40mm long is interpenetrated by a horizontal square prism of base edges 30mm long. The axis of both prism intersect at right angles to each other and both parallel to the V.P. One of the rectangular faces of the prism makes 30 degree to the VP. One of the rectangular faces of the horizontal prism makes 30 degree with the HP. Draw the projections showing the lines of intersection. (20)
- IX. Draw the isometric projection of a frustum of a square pyramid of base edge 40mm long and the top edge 20 mm long. The height of the object is 30mm long. One of the base edges of the pyramid is at 45 degree to the VP. (20)
- OR**
- X. A rectangular block 60x40 mm base and height 80mm is resting erect with a vertical edge touching the PP. The longer edge of the base is inclined at 30 degree to the PP. The station point is 60mm away from the PP directly opposite to the edges, which is in contact with the PP. The horizon plane is 40mm above the ground line. Draw the perspective view of the object. (20)
