BT-MRE-I&II-05.18-1023 Reg. No. | | | | | | | | |

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B.Tech. Degree I & II Semester Examination in Marine Engineering May 2018

MRE 1106 ENGINEERING GRAPHICS

(*2013 Scheme*)

Time: 3 Hours Maximum Marks: 100

(5 × 20 = 100)

I. (a) The distance between Mumbai and Poona is 180 km. A passenger train covers this distance in 6 hours. Construct a plain scale to measure time up to a single minute. The RF of the scale is (1/200000). Find the distance covered by the train in 36 minutes. (10)

(b) Draw two parallel horizontal lines AB and CD 50 mm apart. The horizontal distance between the end points B and C is 40 mm. Draw an ogee curve connecting these two lines. (10)

OR

II. (a) A length of 600 m is represented by a line of 30 cm on a drawing. Draw a backward reading vernier scale to read up to 400 m. Draw the scale for a least count of 50 cm. Mark on the scale the length of 205.5 m and 166.5 m. (10)

(b) Construct a hypocycloid, with rolling circle of 50 mm dia and directing circle 175 mm dia. Draw a tangent to it at a point 50 mm from the directing circle. (10)

III. (a) The distance between the projectors of points A and B is 25 mm. A is 30 mm above HP. A plane containing A, B and XY is at 50° with HP. If the distance between the points in side view is 20 mm and A is nearer to the reference planes, draw the projectors and find the distances of B from the reference planes. (10)

(b) The end projectors of line AB is 60 mm apart. A is 20 mm above HP and 30 mm in front of VP and end B is 70 mm above HP and 60 mm in front of VP. Find the length and their inclinations of the line. (10)

OR

IV. (a) A circle lamina 60 mm diameter has a square hole of side 30 mm with a diagonal parallel to VP is at centre. The lamina is inclined to HP such that the parallel diagonal measures 20 mm in the top view. Draw the front and top view and find the inclination of the plane to HP. (10)

(b) A regular pentagon of 30 mm side has one side in VP. Its plane is inclined 50° the VP and perpendicular to HP. Draw the projection. (10)

V. A cone of base 40 mm diameter and axis of 70 mm long has one of its generators on the HP. A plane containing that generator and the axis is perpendicular to HP and inclined at 45° to VP. Draw its projections when the base is nearer to VP. (20)

OR

VI. A pentagonal prism of side of base 30 mm and height 70 mm has coaxial hole of 30 mm dia. The prism is placed with its axis vertical and is cut by a plane inclined at 40° to the HP and bissecting the axis. Draw the true shape of the section. (20)

(P.T.O.)

VII. A right regular cone of 50 mm base diameter and axis 60 mm long stands on its base on the HP. A circular hole of 12 mm radius is drilled through the axis of the cone at a height of 15 mm above the base of the cone. The sides of the hole are equally inclined to HP. The axes of the hole is perpendicular to VP. Draw the development of the lateral surface of the cone with the hole. (20)

OR

VIII. A vertical cylinder of diameter 55 mm and height 80 mm is completely penetrated by a horizontal cylinder of diameter 30 mm and axis 80 mm such that the axis of the horizontal cylinder is parallel to the VP and 10 mm in front of the axis of the vertical cylinder. Draw the projections showing the curves of intersection. (20)

IX. A square pyramid with base side 40 mm and height 80 mm is resting on a cube of side 50 mm. The axes of the cube and the pyramid being in the same line. The sides of the base of the pyramid are parallel to the edges of the cube. Draw the isometric projection of the solids. (20)

OR

X. A square prism base edge 30 mm and height 60 mm is resting on a face with the axis inclined at 40° with PP and one of the vertical edge in PP. The station point is 50 mm to the right of the midpoint of the axis 30 mm in front of PP and 50 mm above GP. Draw the perspective view. (20)

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