BT MRE–II(R/S)–09.21–0544 Reg. No. | | | | | | | | |

B

B.Tech. Degree II Semester Regular/Supplementary Examination in Marine Engineering September 2021

19-208-0203 ENGINEERING GRAPHICS

(*2019 Scheme*)

Time: 3 Hours

Maximum Marks: 60

(5 × 15 = 75)

I. (a) A length of 400 metres is represented by 20 cm on a map. Draw a diagonal scale to read up to 200 metres and mark 105.4 metres on the scale. (7½)

(b) The distance between Trivandrum and Trissur is 300 km. On a map this is represented by 9 cm. Draw a backward vernier scale, long enough to measure 500 kilometres. Mark a length of 423.25 km on the scale. (7½)

OR

II. (a) Draw an Ellipse by concentric circle method. Given the major and minor axes as 100 mm and 60 mm respectively. Also draw a tangent and normal at any point on the curve. (7½)

(b) A circle of 40 mm diameter rolls along a straight line without slipping. Draw the curve traced out by a point 'P' on the circumference, for one complete revolution of the circle. Name the curve. Also draw the tangent and normal at any point on the curve. (7½)

III. (a) A line AB 80 mm long is inclined at an angle 30 degrees to HP and 45 degrees to VP. The point A is 20 mm above HP and 30 mm in front of VP. Draw the projections of the line. (7½)

(b) The mid point of a straight line CD is 60 mm above HP and 50 mm in front of VP. The line measures 80 mm and inclined at 30 degree to HP and 45 degree to VP. Draw its projections. (7½)

OR

IV. (a) A regular pentagonal lamina of 40 mm side has its plane vertical and inclined at 30 degrees to the VP. Draw its projections when one of its sides perpendicular to HP. (7½)

(b) A circle 50mm diameter inclined at 30 degree to HP and perpendicular to VP has its centre 30 mm in front of VP and on HP. Draw its front, top and side view. (7½)

V. A hexagonal prism, side of base 25 mm and axis 60 mm rests on one edge of base on HP, inclined at 40 degrees to the VP, with its axis inclined at 60 degrees to the HP. Draw its projections. (15)

OR

VI. A cone of base diameter 50 mm and height 60 mm rests with its base on the HP. It is cut by a section plane perpendicular to VP,inclined at 30 degrees with HP and passing through the mid point of the axis. Draw the sectional front view, top view and true shape of section. (15)

(P.T.O.)

VII. A pentagonal pyramid of base edge 30 mm and height 60 mm is resting on its base with one base edge parallel to VP. A cutting plane inclined at 30 degrees with HP and perpendicular to VP, cuts the solid bisecting the axis. Draw the development of the bottom portion. (15)

OR

VIII. A vertical cylinder of diameter 150 mm and 250 mm long is completely penetrated by a horizontal cylinder diameter 125 mm and 200 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)

IX. A cone of height 60 mm and base circle diameter 40 mm is resting on top face of a square prism of 70 mm height and 50 mm base edge, lying on its face on the ground. Draw the Isometric view of the solids. The axis of the objects are in same line. (15)

OR

X. Draw the perspective view of a rectangular prism of 100 mm × 50 mm × 40 mm size lying on its 100 mm × 50 mm rectangular face on the ground plane, with a vertical edge touching the picture plane and the end faces inclined at 45 degree with the picture plane. The station Point is 120 mm in front of the picture plane, 80 mm above the ground plane and lies in a central plane which is passing through the centre of the prism. (15)

***