USN ☐☐☐☐☐☐☐☐☐☐

10MR62

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Naval Architecture – II

Time: 3 hrs.

Max. Marks:100

Note: *Answer any FIVE full questions, selecting*
atleast TWO questions from each part.

PART – A

1 a. Explain measurement of propeller pitch. **(12 Marks)**
   b. A propeller of 4.5 m pitch turns at 120 rev/min and drives the ship at 15.5 knots. If the wake fraction is 0.30 calculate the apparent slip and the real slip. **(08 Marks)**

2 a. Explain open water experiment. **(10 Marks)**
   b. Explain measured mile method. **(10 Marks)**

3 a. Explain angle of heel when turning. **(10 Marks)**
   b. A ship with a metacentric height of 0.4 m has a speed of 21 knots. The C.G. is 6.2 m above the keel. While the centre of lateral resistance is 4m above the keel. The rudder is put hard over to port and the vessel turns in a circle 1100 m radius. Calculate the angle to which the ship will heel. **(10 Marks)**

4 a. What is angle of balance? Explain
      (i) Balanced rudder   (ii) Unbalanced rudder   (iii) Semibalanced rudder. **(11 Marks)**
   b. Draw (i) Spade rudder   (ii) Rudder on horn   (iii) Rudder with skey support. **(09 Marks)**

PART – B

5 a. Write a note on shearing force and bending moment forces. **(10 Marks)**
   b. Explain alternate bending moment calculation methods. **(10 Marks)**

6 a. Explain forces on a ship in still water. **(04 Marks)**
   b. Write a note on static longitudinal strength approach. **(08 Marks)**
   c. Write a note on changes to section modulus. **(08 Marks)**

7 a. Explain trochoidal wave system. **(10 Marks)**
   b. Write a note on energy spectra. **(10 Marks)**

8 a. Explain forces due to (i) Rolling   (ii) Pitching   (iii) Heaving. **(12 Marks)**
   b. Write a note on fin stabilizer. **(08 Marks)**

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