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10MR62

Sixth Semester B.E. Degree Examination, June/July 2015
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. Define i) Pitch ii) Apparent slip iii) Theoretical speed iv) Wake v) Real slip. (10 Marks)
 b. Explain cavitation. (06 Marks)
 c. Define i) Rake angle ii) Hub (Boss). (04 Marks)
- 2 a. Explain Blade element theory. (12 Marks)
 b. Explain Measured mile method. (08 Marks)
- 3 a. Explain Angle of heel due to force on rudder. (12 Marks)
 b. A ship of 8000 tonne displacement has a rudder of area 18m^2 . The centre of lateral resistance is 4m above the keel while the centroid of the rudder is 2.35m above the keel. The max. rudder angle is 35° . Calculate the angle of heel due to the force on the rudder if the latter is put hard over to port when travelling at 21 knots with metacentric height of 0.4m. (08 Marks)
- 4 a. What is angle of balance? Explain. (11 Marks)
 i) Balanced Rudder ii) Unbalanced Rudder iii) Semi - Balanced Rudder.
 b. Draw the following :
 i) Spade Rudder ii) Rudder on a horn iii) Rudder with skeg support. (09 Marks)

PART - B

- 5 a. Write a note on shearing force and bending moment. (10 Marks)
 b. Explain Alternate Bending moment calculation methods. (10 Marks)
- 6 a. Write a note on forces on a ship in still water. (04 Marks)
 b. Explain static longitudinal strength approach. (08 Marks)
 c. Write a note on changes to section modulus. (08 Marks)
- 7 a. Write a note on trochoidal waves. (10 Marks)
 b. Explain Energy spectra. (10 Marks)
- 8 a. Explain Passive tanks. (10 Marks)
 b. Draw and explain bilge keel. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
 2. Any revealing of identification, appeal to evaluator and /or equations written eg. $42+8=50$, will be treated as malpractice.