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B.Sc. (NAUTICAL SCIENCE)**Term-End Examination****December, 2011****BNA-051 : SHIP MANOEUVRING AND
FUTURE ISSUES***Time : 3 Hours**Maximum Marks : 70*

Note : *Attempt any four questions from Section-A and any three questions from Section-B. All questions carry equal marks. Write new answer from fresh page.*

SECTION - A

1. Explain with neat diagram of a simple rudder 10
 - (a) The chord
 - (b) The span
 - (c) Aspect ratio
2. Explain in detail the factors to take into account for preparing to anchor. 10
3. Explain in detail various method of tug assistance. 10
4. What causes squat ? Explain in detail the main factors affecting ship squat. 10
5. Explain in detail, various types of marine policies. 10
6. What are the important points to be considered prior to vetting inspection ? 10

SECTION - B

7. What safety precautions must a vessel take during ballast water exchange ? 10
 8. What are the primary and secondary methods to reduce sulphur oxide (SO_x) emission ? 10
 9. Explain in detail the characteristics, advantages and disadvantages of hydro power energy. 10
 10. Explain in detail, the guidelines for action required of master of ship in need of a place of refuge. 10
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