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***B.Tech. Degree IV Semester Examination in Marine Engineering
May 2019***

**MRE 1405 MARINE AUXILIARY MACHINERY I
(2013 Scheme)**

Time: 3 Hours

Maximum Marks: 100

(5 × 20 = 100)

- I. (a) With the aid of a neat line diagram explain main engine lub oil system and mark the various items connected to the system. (10)
- (b) Draw a neat line diagram of fuel oil bunkering system. What are the precautions to be taken during bunkering? (10)
- OR**
- II. Write short notes: (20)
- (i) Quick closing valve
- (ii) Reducing valve
- (iii) Gate valve
- (iv) Boiler gauge glass cocks
- III. (a) Sketch and describe 2-stage reciprocating air compressor and mark all the parts. Explain the effect of inter-cooling with the aid of P-V diagram. (15)
- (b) What are the normal maintenance routines being carried out on air compressor system? (5)
- OR**
- IV. (a) Sketch and describe fresh water generator fitted with plate type heat exchangers. Mention the functions of various parts in the system. (15)
- (b) Explain how fresh water is treated to make suitable for drinking (5)
- V. (a) Using simple diagrams explain layout of various machinery in engine room. (10)
- (b) Explain using simple sketches, different types of valves in marine use. Briefly explain the routine maintenance to be carried out on valves. (10)
- OR**
- VI. (a) Sketch and describe shell and tube heat exchanger and specify the different materials used. (15)
- (b) What are the various maintenances need to be carried out on shell and tube heat exchanger to get optimum performance. (5)
- VII. Write short notes: (20)
- (i) Gravity disc of purifier
- (ii) Lip seal
- (iii) Wear ring of pumps
- (iv) Valve actuator
- (v) Blowers
- OR**
- VIII. (a) What are the different types of pumps used in ships? Compare their features and pumping capability. (10)
- (b) Sketch and describe centrifugal pump. Why does centrifugal pump require priming? (10)

(P.T.O.)

- IX. (a) Explain the duties of a watch keeping engineer. Explain the procedure of taking over of watch. (10)
- (b) Draw jacket cooling systems of main engine, marking various items in the system. (10)

OR

- X. (a) Sketch and describe centrifugal purifier with self desludging arrangement. (15)
- (b) What are the factors to be looked into to get optimum performance? (5)
