



INDIAN MARITIME UNIVERSITY
 (A Central University)
DEPARTMENT OF MARINE ENGINEERING
B.TECH-MARINE ENGINEERING
SEMESTER EXAMINATION-June 2011

Course code:UG/ME/BS/T/222

Sub.name: MARINE BOILERS & STEAM ENGINEERING

TIME : 3 hours

Max.marks:100

Part A (3 × 10 = 30 Marks)

Answer all the Questions

- a) List three types of water wall constructions used in water tube boilers.
- b) What is the use of an attemperator in a water tube boiler?
- c) Make a rough sketch of smoke tube composite boiler.
- d) How boiler gauge glass is blown through?
- e) List the refractory materials used in boiler. → furnace floor and front burner wall. It is also used behind the water wall.
- f) Make a sketch of pressure jet burner atomiser.
- g) List three types of water level controls used in boiler.
- h) How does water hammer happen and how to avoid it?
- i) List the materials that can be used for steam turbine blade fabrication.
- j) What is drain attack on steam turbine and how to avoid it?

Part B (14 × 5 = 70 Marks)

Answer any five of the following

Explain arrangement of a manhole on a scotch boiler shell with the help of circumferential and longitudinal stress relations. (14)

Enumerate the boiler mountings fitted to a water tube boiler. State the purpose of each fitting. (14)

Sketch and describe an improved high lift type safety valve. (14)

- 5) Describe the procedure for carrying out a hydraulic test on a water tube boiler. (14)
- 6) Describe the process of raising steam from cold on a scotch boiler. (14)
- 7) Outline the steam turbine power plant and detail the components function. (14)
- 8) Sketch and describe pressure lube oil system for steam turbine plant. (14)