

Indian Maritime University
(A Central University, Govt. Of India)
B. Tech(Marine Engineering)
End Semester Examination **Dec-2019/Jan-2020**
Semester-VI
Advanced Marine Heat Engines (Co-Cycles)
(UG11E1602/UG11E2602)

Date: 11-01-2020

Max Marks: **70**

Time: 3 Hrs

Pass Marks: **35**

PART – A (Compulsory)

Answer the following.

(10 X 2 = 20 Marks)

1. What are the limitations of Diesel Engines?
2. Compare thermal efficiency between steam turbine and gas turbine .
3. What is surging in Turbo Charger?
4. Define the following i) Atomization ii) Penetration with regard to fuel injection.
5. What is the purpose of Air pre-heater in Boiler?
6. What are the main components of Gas Turbine plant?
7. What is the prime requirement of premixing of gaseous fuel for Combustion?
8. Define - Safe Manning Certificate
9. What is meant by Calorific value of fuel?
10. Define- Turndown Ratio of a boiler.

PART – B

(5X10 =50 Marks)

Answer any FIVE out of Seven questions

11. Sketch and describe clearly on working principle of a Free Piston Gas Generator (10)
- 12.a) List out different types of Heat Exchangers (5)
b) How to determine Fouling Factor of Heat Exchanger? (5)
- 13.a) What are the factors support complete combustion in a Diesel Engine? (5)
b) How does the shape of combustion space affect combustion? (5)
- 14.a) What is Stoichiometric ratio? (3)
b) Explain briefly on excess air in the boiler combustion system (7)
15. Write short Notes on following (10)
a) Axial compressor
b) NTU
c) LMTD
d) Gasification
16. What is cascade refrigeration plant? Explain with a neat sketch on cascade refrigeration plant for passenger vessel. (10)
- 17.a) What is coal gasification and identify its location in a combined cycle? (6)
b) What are the methods used for reducing NO_x emissions? (4)