

Indian Maritime University

(A Central University, Govt of India)

May-June 2018 End Semester Examinations

B Sc (Nautical Science)

Semester-I

Nautical Physics-II (UG21T2106)

Duration:3 Hrs
Date: 14.07.2018

Max Marks:70 Marks
Pass Marks:35 Marks

Note: Answer any SEVEN from the following 9 Questions.

All questions carry equal marks.

1. a) Distinguish between AC and DC voltage. (5)
b) Discuss the cases of resistors in series and parallel combination. (5)
2. a) State Faraday's and Lenz law of electromagnetic induction. (5)
b) Explain why transformers are used only for AC. (5)
3. a) What do you mean by static electricity and what are its precautions. (5)
b) Two capacitors $C_1=3\mu\text{F}$ and $C_2 =6 \mu\text{F}$ are in series across 90V dc supply. Show a circuit and calculate the charges on C_1 and C_2 and potential difference across each. (5)
4. a) Explain thermo electric effect. (5)
b) What is the difference between AC generator and DC generator. (5)
5. a) Explain step up and step down transformer and the turn ratio. (5)
b) The resistance of two wires is 25 ohms when connected in series and 6 ohms when joined in parallel. Calculate the resistance of each wire. (5)
6. Explain with principle, neat diagram, construction and working of AC generator. (10)
7. a) Give any 2 applications for heating effect of electric current. (5)
b) Calculate the horizontal and vertical components of the earth's magnetic field at a place where the angle of dip is 50° and the earth's total field strength is 20 A/m. (5)

8. Explain series and shunt type DC motor. (10)

9.a) Discuss earth as a magnet. (5)

b) Explain dry compass and wet card compass. (5)
