INDIAN MARITIME UNIVERSITY

(A Central University, Govt. of India)

June/July 2019 End Semester Examinations

DNS (Diploma in Nautical Science)

Semester I

Applied Electricity & Electronics (UD11T2103)

Date: 26.06.2019 **Max.Marks:70**

Time:2 Hrs. **Pass Marks:25**

Attempt any six questions out of Eight. All questions carry equal marks.

Use of non-Programmable type Scientific Calculator is allowed.

Section A: Electricity

(Question 1 is compulsory)

1.(a) Define Voltage, Electric current, Power and energy. (5)

(b)Explain Principle, Construction and working of transformer. (5)

(c)Explain heating effect of electric current with any two examples. (5)

2.(a) Explain principle, construction and working of DC generator. (5)

(b) A coil having 150 turns and it is linked with the flux of 0.01 wb when carrying the current of 10 Amp, calculate the self-inductance of coil. Now if the current in the coil is reversed in 0.01 second, calculate the induced emf in the coil. (5)

3. (a) what is electric shock, mention few methods of protecting human from electric shock. (5)

(b) state the hazards associated with static electricity. (5)

4.(a) Two capacitors C_1=3μF and C_2=6μF are in series across 90 V DC Supply. show a circuit and calculate the charges on C_1 and C_2 and potential difference across each. (5)

(b) Define self and mutual inductance. (5)

Section B: Electronics

(Question 5 is compulsory)

5. (a) Define current gain α and β for a transistor obtain the relation Between them. (5)

(b)Explain Simple LC tank circuit. (5)

(c) Define voltage gain, power gain and current gain of amplifier. (5)

6.(a) Define modulation and demodulation in communication system. Why do we

Need modulation?

(b) The carrier and modulating frequency of FM transmitter are 130 MHz and 16 KHz respectively. If maximum frequency deviation is 85 KHz, find the modulation index, bandwidth, first three lower and upper side band frequencies. (5)

7.(a) Define Logic gate circuit. Explain AND logic gate with symbol, logical expression and truth table. (5)

(b) What is LDR? Describe its working and construction details. (5)

8. Write short notes on any two: (10)

a) Transducers.

b) Radio receiver.

c) Sky wave propagation.

d) Yagi Antenna.