Roll No…….. **Total No. of Printed Pages: 1**
Total No. of Questions: [09]

B.Sc. Hons. (Aircraft Maintenance Engineering) (Semester 1st)
ELECTRICAL FUNDAMENTALS - I
Sub code: BAME3-105
Paper ID: [20131103]

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a) Define RC time constant with the help of charging curve of capacitor.
b) Define Kirchoff's law.
c) An emf source of 6 V is connected to a purely resistive lamp and a current of 2 amperes flows. What is the resistance of the lamp?
d) Write short note on series DC circuit and parallel DC circuit.
e) Find the equivalent resistance when the 1Ω and 10^3 Ω and 10^6Ω resistances are connected in parallel.
f) Write down the factors on which capacitance of the capacitor depends?
g) Define the advantages of transformer.
h) In a series RLC circuit, if the current at resonance is 10A, then the current corresponding to half power delivered is
i) Define Faraday's laws of electromagnetic induction.
j) Write short note on Variable Resistor.

Section – B **(5 marks each)**

Q2. Describe the Precautions to be taken while handling ESD components.
Q3. Explain the working and applications of Thermistors and Photo conductive cells.
Q4. Explain the procedure to find the value of unknown resistance by Resistor color coding method.
Q5. Explain the operation of T type and π type filters.
Q6. Differentiate between Series Resonant circuit and Parallel Resonant circuit.

Section – C **(10 marks each)**

Q7. Explain the coefficient of self-induction and mutual induction. Also derive the expression for coefficient of coupling.
Q8. Explain the types of Magnets and Magnetic hysteresis loop in detail.
Q9. Explain the Active power, Reactive power, apparent power, Power factor and Q factor of a coil.