6033
BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN ELECTRONICS AND COMMUNICATIONS ENGINEERING
ELEMENTS OF ELECTRICAL ENGINEERING
FIRST YEAR EXAMINATION

Time: 3 Hours **Total Marks: 80**

PART - A (3m x 10 = 30m)

Note 1:Answer all questions and each question carries 3 marks

2:Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Define absolute and relative permeability
2. **Define the following a) Masreto Motive Force(M.M.F)**
   b) Permeability and Reluctance
3. Determine the voltage across a 4μF capacitor when charged with 5mC
4. Define the term electric potential difference and state its unit
5. Determine the capacitive reactance of a capacitor of 10μF when connected to a circuit of frequency (a) 50 Hz, (b) 20 kHz
6. **State the methods used to slove the AC prallel circuits**
7. State the operation of potential transformer
8. State the working principle of autotransformer
9. Draw the characteristics of DC series motor
10. **List the applications of AC motors.**

PART - B (10m x 5 = 50m)

Note 1:Answer any five questions and each carries 10 marks

2:The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. Explain dynamically and statically induced EMF
12. **a) Explain charging and discharging of capacitor** **7**
    b) Write the expression for energy stored in a capacitor **3**

13A. Briefly explain the concept of lines of force and magnetic field

B. Compare electrostatic and magnetic fields

14. A coil of resistance 5 *ohm* and inductance 120 mH in series with a 100μF capacitor is connected to a 300 V, 50 Hz supply. Calculate (a) the circuit impedance (b) the current flowing, (c) the phase difference between the supply voltage and current, (d) the voltage across the coil and (e) the voltage across the capacitor

15. a) Explain the effect of AC flowing through Pure Capacitance with vector diagram
b) Define the following a) Impedance b) Admittance c) Q – factor of a coil

16. Explain the working principle of a transformer with a neat sketch

17. (a) Explain the need for starters
(b) List any five differences between DC series and DC shunt motor

18. (a) Explain the principal of operation of an induction motor

(b) Classify ac motors based on the principle of operation, and structural features

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