C16-**M-305**

6246

BOARD DIPLOMA EXAMINATIONS

SEPTEMBER/OCTOBER - 2020

DME – THIRD SEMESTER

BASIC ELECTRICAL ENGINEERING & ELECTRONICS

Time: 3 hours Max. Marks: 80

PART – A **3 X 10 = 30**

Instructions: *1. Answer **all** questions.*
*2. Each question carries **Three** Marks.*
3. Answer should be brief and straight to the point and should not exceed five simple sentences.

1. State Ohm's law.
2. Define the following
   a) Magnetic field strength b) Flux C) Reluctance.
3. List the types of D.C generators.
4. State any three applications of D.C motors.
5. Define a) R.M.S value b) Form factor of an alternating quantity.
6. Define Amplitude, Frequency and Instantaneous value.
7. List any three applications of three-phase induction motors.
8. Define conductor, semi-conductor and insulators.
9. Draw the connection diagram of single phase energy meter with load.
10. State the purpose of earthing of electrical equipment.

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PART – B 5 X 10 = 50

Instructions: *1. Answer any **Five** questions*
*2. Each question carries **TEN** Marks.*
3. Answer should be comprehensive and a criterion for valuation is the content but not the length of the answer.

11. State and explain the Kirchhoff's Laws.

12. a) Define self-inductance and mutual inductance.

    b) Explain energy stored in a magnetic field.

13. State the relation between currents and voltages for different types of DC generators.

14. a) Explain the speed control of DC shunt motor with Armature control method.

    b) Explain the constructional features of squirrel cage induction motor.

15. A resistance of 12 ohms, an inductance of 0.15 Henry and a capacitance of 130 µF are connected in series across a supply of 200 volts. 50 Hz. Calculate a) The Impedance b) The Current c) Power Factor d) Phase angle between Voltage and Current and e) Power consumed.

16. a) Classify the single-phase induction motors.

    b) Explain the construction and working of welding transformer with neat sketch.

17. a) Distinguish between Zener and Avalanche Break-down.

    b) Explain the operation of L.C.D.

18. Explain the construction and working of dynamometer type wattmeter.